I. C. 6941

MAY 1937

DEPARTMENT OF THE INTERIOR

UNITED STATES BUREAU OF MINES
JOHN W. FINCH, DIRECTOR

INFORMATION CIRCULAR

RECONNAISSANCE OF MINING DISTRICTS IN MINERAL COUNTY, NEV.

RECEIVED
JUL - 1 1937
O. S. U. LIBRARY

BY

WILLIAM O. VANDERBURG

ER THIS REPORT HAS SERVED YOUR PURPOSE AND IF YOU HAVE NO FURTHER NEED FOR IT, PLEASE RETURN IT TO THE BUREAU OF MINES, USING THE OFFICIAL MAILING LABEL ON THE INSIDE OF THE BACK COVER.

Generated on 2024-09-18 02:42 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

Original from
THE OHIO STATE UNIVERSITY

C. 6941
y 1937

INFORMATION CIRCULAR

DEPARTMENT OF THE INTERIOR - BUREAU OF MINES

RECONNAISSANCE OF MINING DISTRICTS IN MINERAL COUNTY, NEV.[1]/

By William O. Vanderburg[2]/

CONTENTS

	Page
troduction	4
knowledgments	4
neral County	4
General	4
Topography	5
Water resources	5
Climate and vegetation	6
Power facilities	6
Transportation facilities	7
History of mining	7
Metal production	9
by District	11
Ashby Gold Mine, Inc.	12
rora District	13
salt District	16
Somerville group	16
Diatom Company	17
ll District	17
Simon Silver-Lead Mines, Inc.	17
Ohio mine	18
Golden Mile group	19
Clay Peters group	21
Harvey-Taylor group	21
Finger Rock Quicksilver Mining Co., Inc.	22
Diatomaceous earth	22

The Bureau of Mines will welcome reprinting of this paper, provided the following footnote acknowledgment is used: "Reprinted from U. S. Bureau of Mines Information Circular 6941."

[2]/ Mining engineer, U. S. Bureau of Mines.

37

Generated on 2024-09-18 02:47 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

Original from THE OHIO STATE UNIVERSITY

Page

Broken Hills District 22
Broken Hills mine 23
Silver Trailer group 24
Baxter mine 24
Candelaria District 25
Argentum Mining Co. 26
Secretary Lode Mines Co. 26
Turquoise and variscite 27
Double Springs Marsh District 27
Eagleville District 29
Highland group 29
Other claims 29
Fitting District 30
Dover group 30
Other andalusite claims 31
Chiatovich group 31
Mica 31
Graphite 32
Iron 32
Fick Mining Co. 32
Hawaiian group 33
Garfield District 33
Eldorado Mining Co. 34
Mabel mine 34
Hawthorne District 35
Lucky Boy Consolidated Mines Co. 36
La Panta mine 36
Pamlico mine 36
Placer gold 37
Barite 37
King District 37
Donnelly group 38
Marietta District 38
Moho mine 38
Endowment mine 39
Rutty group 39
Gold Gulch Mining and Milling Co. 39
Annett group 40
Mountain View District 40
Mountain Grant District 41
Grant Mountain Gold Mine 41
Big Indian mine 42
Cory mine 42
Talisman group 42
Return group 43
Molybdenite 43

Generated on 2024-09-18 02:47 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

	Page
ount Montgomery District	47
Mount Montgomery Quicksilver Co.	47
Tip Top mine	47
Golden Gate Mining Co.	47
Other properties	48
Mogoe claims	48
Bentonite	48
Fluorspar	49
neota District	49
ilot Mountains District	50
Mina Mercury Co.	51
Drew mine	52
Other cinnabar claims	52
Gunmetal group	53
Other tungsten claims	54
Stormland group	54
Belleville mine	54
Sodaville tailings	55
Bentonite	55
Montezuma mine	55
and District	55
Randall property	55
Gold Pen mine	57
Lone Star group	58
awhide District	58
Leonard lease	59
Placers	62
Tungsten claims	63
codes Marsh District	64
anta Fe District	66
New Year group	67
Dolly group	70
American Copper Co.	70
Other mines and prospects	71
ilver Star District	71
General Tungsten Corp.	74
Silver Dyke mine	74
Tungsten Dike group	75
Nevada Douglas Gold Mines, Inc.	76
High Ore group	76
Bentonite	77
ell's Marsh District	77
iskey Flat District	78

Generated on 2024-09-18 02:48 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

INTRODUCTION

This paper gives the results of a reconnaissance of the mining distric of Mineral County, Nev., made during the month of June and the first 10 da in October 1936.3/ During the field work virtually all the mining district in the county were visited and many data were obtained relative to active and inactive properties. The report covers the location of the various mining districts, nature of deposits, ownership, information on past and current activity, data on economic conditions, and general information likely to be useful to operators and investors and others interested in mining. The geology of the deposits is discussed only in a general way.

For nearly three-quarters of a century mining in Mineral County has been the principal if not the only industry of importance. At times it has reached a very low ebb, and at other times it has been attended by the wild excitement that usually accompanies valuable discoveries of precious metals.

Current metal-mining activity in this county is characterized by small-scale leasing operations. The ores are shipped mainly to smelters near Salt Lake City, Utah, for treatment.

ACKNOWLEDGMENTS

The author wishes to thank the owners, lessees, and mine operators, too numerous to mention individually, who wholeheartedly provided information and assistance during the course of the field work.

Charles White Merrill, of the Mineral Production and Economics Division, United States Bureau of Mines, furnished data for the mineral-production tables, and the Mackay School of Mines, University of Nevada, at Reno, cooperated in making mineral determinations and assays and in permitting the use of its technical library.

MINERAL COUNTY

General

Mineral County, in the west-central part of Nevada, was created out o the northern portion of Esmeralda County, and its boundaries were establis by an act of the State Legislature approved February 10, 1911. In 1933 certain northern townships and parts of townships were withdrawn from Mineral County and annexed to Lyon County by act of the State Legislature approved March 28, 1933. Before this area was annexed to Lyon County, Mineral County had a land area of 4,019 square miles and a water area of 125 square miles, a total of 4,144 square miles.4/ No accurate figures

3/ Manuscript completed November 14, 1936.

4/ Lotz, T. A., Report of the Surveyor General and State Land Register, St Nevada, for the period Jan. 1, 1931, to June 30, 1932, incl.: State Printing Office, Carson City, Nev., p. 11.

Generated on 2024-09-18 02:49 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

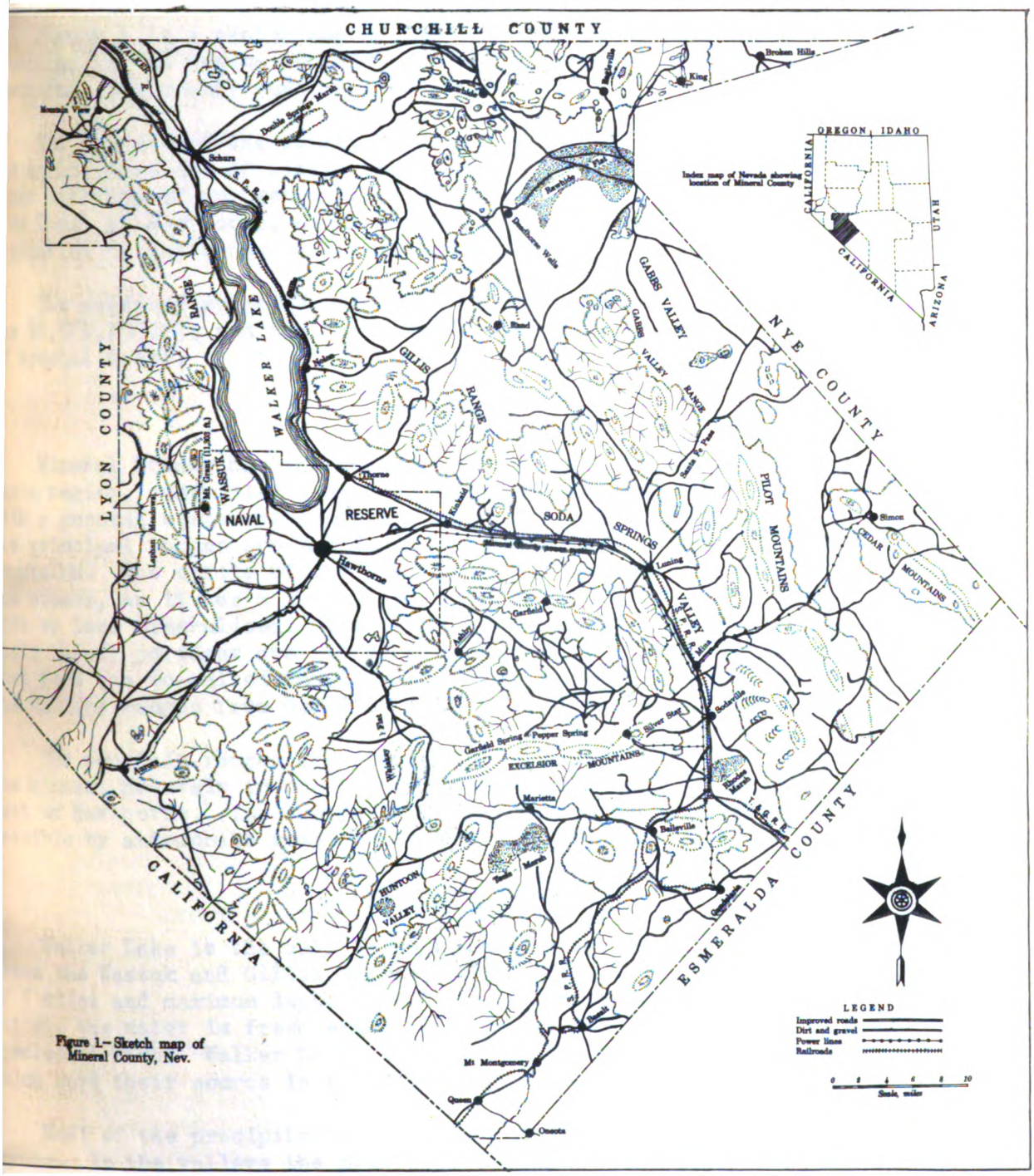

Figure 1.—Sketch map of Mineral County, Nev.

Generated on 2024-09-18 02:44 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

re available on the area withdrawn from Mineral County in 1933, but it is oughly figured to contain 475 square miles. The water area embraces alker Lake in the northwestern part of the county.

Figure 1 is a sketch map of the county. The population of the county, ccording to the census of 1930, was 1,863, about 1,200 of whom reside in awthorne, the county seat, and 400 in Mina.

The welfare of the county depends largely on mining, as its ranching nd agriculture are of little importance. In addition to mining, the only ther activity of any consequence is the maintenance of the Naval Ammunition Depot at Hawthorne, which employs a considerable part of the civilian opulation of Hawthorne in the storage of explosives.

The assessed property valuation in the county for the fiscal year 1935 as $4,521,755.23, and the tax rate for the same was $2.88 per $100, exclusive f special taxes.

Topography

Mineral County has the characteristic physical features of the Great asin region, comprising a series of approximately parallel mountain ranges ith a general northwest-southeast trend and separated by troughlike valleys. he principal ranges are the Wassuk, Gabbs Valley, Gillis, Pilot, and Excelsior ountains. The strike of the last range is not like the general strike of he others, as it has a general east and west trend. All the mountains are ore or less mineralized. The valleys have gently sloping sides and in heir lowest portions are filled with a mixture of silt and alkali salts hat form the so-called "dry" lakes. The altitude of the lower parts of he valleys ranges from 4,000 to 4,500 feet above sea level.

The mountain ranges are from 6,000 to over 10,000 feet above sea level. he highest mountain in the county is Mount Grant in the Wassuk Range northest of Hawthorne. Its summit is 11,303 feet above sea level, and it is accessible by automobile road constructed in 1935.

Water Resources

Walker Lake is the only large body of water in the county. It lies beween the Wassuk and Gillis Ranges, is 23 miles long, and has a maximum width f 7 miles and maximum depth of 435 feet. Although the lake has no apparent utlet, the water is fresh enough to support trout, bass, carp, and other pecies of fish. Walker Lake is fed by Walker River and its tributaries, hich have their source in the Sierra Nevada Range.

Most of the precipitation is in the form of snow during the winter onths. In the valleys the precipitation is approximately 5 inches per ear. The amount of precipitation increases progressively with the altitude, nd in the higher mountains within this area is appreciably greater. The ides of the mountain ranges are intersected by short, steep canyons, in hich small streams are formed by melting snow during the spring run-off.

Generated on 2024-09-18 02:47 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

No surface water from this area flows to the sea, and the valleys constitute the drainage reservoirs. Mountain streams supply the water for the town of Hawthorne and the Naval Ammunition Depot, while water for Mina is obtained from springs.

As in all semiarid regions of the southwest, heavy downpours of rain, called cloudbursts, occur occasionally during the summer months. These storms are local in character and bring to the area affected as much rain in a few hours as would normally fall during the whole year.

In some of the mining districts water for milling is scarce. At Sodaville, water for milling is obtained from a number of highly mineralized hot springs. The hot spring water is unsuited for domestic use, but it is used for milling purposes, apparently with satisfactory results. In a number of places within the county are scattered springs and seeps that occur on the slopes of the mountain ranges, but the flows usually are small. In some of the valleys water can probably be obtained from shallow wells in sufficient quantities for milling purposes. The only artesian water in the county is from two wells sunk at the south end of Rhodes Marsh in 1930.

Climate and Vegetation

The climate of Mineral County is characteristic of the high, arid regions in the Great Basin. In the summer the temperature often rises above 90° F. during the day, but the humidity is low, so that this temperature can be endured without discomfort. During the summer months the nights invariably are cool. The winters usually are mild and open, but occasionally freezing temperatures are maintained for short periods. In virtually all the mining districts mentioned in this report mining activity can be carried on the year around without difficulty.

Some kind of vegetation is present over the whole area, with the exception of valley playas, which are filled with a mixture of silt and alkali salts, injurious to vegetation. At the lower altitudes the vegetation consists mainly of sagebrush, and on the mountain slopes stunted growths of juniper, mountain mahogany, and cedars occur. The forest areas contain no sawtimber, and the growth is fit only for firewood.

Power Facilities

Most of the mining areas in Mineral County depend upon either Diesel or gasoline engines for power. The only public-service power company operating in the county is the Mineral County Power System, owned and operated by the county. Power is generated at hydroelectric plants in the Sierra Mountains in California, and the transmission line serves the towns of Hawthorne and Mina, and Aurora, Candelaria, Cedar Mountains (Simon and Omco mines), Hawthorne (Lucky Boy Mine), and Silver Star (Silver Dyke mine) mining districts.

Generated on 2024-09-18 02:42 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

The rates for industrial mining and milling power consumption under hedule E, when the consumption exceeds 10,000 kilowatt hours per month, as follows:

	Cent per kw.-hr.
First 1,000 kw.-hr. per month	0.04
Next 2,000 kw.-hr. per month	.03
Next 3,000 kw.-hr. per month	.02 1/2
Next 4,000 kw.-hr. per month	.02
Next 10,000 kw.-hr. per month	.01 1/2
Over 20,000 kw.-hr. per month	.01 1/4

In addition to the above kw.-hr. charge, there is a readiness-to-serve or demand charge of $2.50 per month per kw. of 15 minute maximum demand as recorded by meters, provided the monthly minimum payment required shall not be less than $250 per month to cover line and transformer losses so long as any service shall be required of the county.

This demand charge shall be taken as the highest kw. reading for the current month and the 11 months next immediately preceding.

The minimum charge shall be the demand or readiness-to-serve charge, as explained above, of at least $250 per month.

A 10-percent discount is allowed for prompt payment.

Transportation Facilities

The Mina-Hazen branch of the Southern Pacific R.R. traverses the ntral part of the county. This branch line connects with the main line at gen. From Mina, the southern terminus of this railroad, the Tonopah & ldfield R. R., serves the towns of Tonopah and Goldfield. A narrow-gauge ilroad, also operated by the Southern Pacific R.R. connects Mina with eler, Calif.

An excellent macadam highway running north and south traverses the unty. Fair dirt roads branch off the main highway, so that virtually l the districts mentioned in this report are accessible by automobile.

The Southern Pacific R. R. freight rates on ores from the various ading stations in Mineral County to Utah smelters are shown in table 1.

History of Mining

The region comprising the State of Nevada was part of the domain ac-ired from Mexico by treaty after the close of the Mexican War. Subse-antly it was part of the Territory of Utah. By act of Congress approved rch 2, 1861, the Territory of Nevada was created, and on October 31, 1864, was admitted into the Union.

Generated on 2024-09-18 02:47 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Generated on 2024-09-18 02:42 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

TABLE 1. - Freight rates on ores from various localities in Mineral County to Salt Lake City smelters.

Value of ore per ton1/	$10 2/	$15	$20	$30	$40	$50	$60	$70	$80	$90	$100	$150	$200	$250	$300
Schurz	3.20	---	3/ (3.40	4.10	4.80	5.50	6.20	6.90	7.00	8.30	9.00	10.70	10.70	11.20	11.20
			4/ (5.10	5.80	6.50	7.20	7.90	8.60	9.30	10.00	10.60	13.10	13.10	13.60	13.60
Thorne	3.20	---	(3.50	4.20	4.90	5.60	6.30	7.00	7.70	8.40	9.10	10.70	10.70	11.20	11.20
			(5.10	5.80	6.50	7.20	7.90	8.60	9.30	10.00	10.60	13.10	13.10	13.60	13.60
Kinkead) ...	3.20	---	(3.60	4.30	5.00	5.70	6.40	7.10	7.80	8.50	9.20	10.70	10.70	11.20	11.20
Luning)			(5.10	5.80	6.50	7.20	7.90	8.60	9.30	10.00	10.60	13.10	13.10	13.60	13.60
Mina	3.20	---	(3.60	4.30	5.00	5.90	6.40	7.10	7.80	8.50	9.20	10.70	10.70	11.20	11.20
			(5.10	5.80	6.50	7.20	7.90	8.60	9.30	10.00	10.60	13.10	13.10	13.60	13.60
Sodaville..	---	---	3.30	4.60	5.30	6.00	6.70	7.40	8.10	8.80	9.50	10.70	10.70	11.20	11.20
Rhodes	---	---	5.60	7.00	7.00	8.40	9.10	9.90	10.50	11.10	11.60	13.10	13.10	13.60	13.60
Belleville.	---	---	(3.90	4.60	5.30	6.00	6.70	7.40	8.10	8.80	9.50	10.70	10.70	11.20	11.20
			(6.30	7.00	7.00	9.10	9.60	10.10	10.60	11.10	11.60	13.10	13.10	13.60	13.60
Basalt.....	---	(3.90	3.90	4.60	5.30	6.00	6.70	7.40	8.10	8.80	9.50	10.70	10.70	11.20	11.20
		(6.60	7.00	7.00	7.00	9.10	9.60	10.10	10.60	11.10	11.60	13.10	13.10	13.60	13.60
Mt. Montgomery	---	4.00	4.00	4.70	5.40	6.10	6.80	7.50	8.20	8.90	9.60	10.70	10.70	11.20	11.20
Queens.....	---	6.90	7.00	7.00	7.00	9.40	9.90	10.40	10.90	11.40	11.90	13.10	13.10	13.60	13.60

1/ The railroad value per ton is the smelter value (less treatment) divided by the total number of tons (wet weight) in the shipment.
2/ Applies on carload minimum weight 100,000 pounds.
3/ First row of figures apply on carload shipments, minimum weight 80,000 pounds.
4/ Second row of figures apply on carload shipments, minimum weight 40,000 pounds.

Digitized by Google
Original from THE OHIO STATE UNIVERSITY

There is no evidence to indicate that the area now included in Mineral County was worked for its mineral deposits while it was a part of Mexico. Gold placers, which are usually the first deposits to be exploited, are relatively scarce in this area, and its mountainous character and vast distance from inhabited centers prevented early settlement.

The first systematic mining began with the discovery of the silver-gold deposits of Aurora on August 26, 1860. This discovery was followed by others, including Candelaria, Garfield, Oneota, Silver Star, and Santa Fe. The period of greatest mining activity was from 1865 to 1875, when these districts attained their maximum production.

In the early seventies great excitement was aroused by the discovery of borax in the salines of Teels, and Rhodes Marsh in Mineral County and Columbus and Fish Lake Marsh in Esmeralda County. Large plants were erected, which were kept constantly at work night and day 8 months of the year. The crude borax was hauled to Wadsworth, Nev., 130 miles distant, by freight teams. In the summer of 1875, 28 teams, 16 horses in each, were engaged in hauling ore and supplies. As the result of the success of the borax operations in Nevada, the principal producer, F. M. (Borax) Smith, extended his activities to other borax deposits and eventually obtained control of the world borax market, which he held for about 20 years.

The Carson and Colorado narrow-gage railroad was completed in 1882. With the discovery of bonanza ores of Tonopah and Goldfield, the road was inadequate to handle the traffic, and it was converted to a broad-gage line in 1904.

The mining districts included in this report have been active intermittently since the early days, experiencing alternate periods of prosperity and decline. The last period of intense mining activity in the county occurred during the World War, when the prices of metals rose considerably. Cinnabar deposits were found and worked in the Pilot Mountains, and the tungsten deposits in the Excelsior Mountains began to be exploited. By 1930 the production of metals had reached an all-time low with only $26,699 worth for the entire county. Since 1930 there has been a gradual increase in mining activity by lessees. Since lessees usually are men of small means and hence unable to carry on extensive development, their activities are restricted to the mining of ore of shipping grade that occurs in such a manner that a minimum of dead work is required to recover it. In recent months a number of deposits in the county were being investigated by investors from other States, and the general feeling is that the county will again attain a production comparable to that of former years.

Metal Production

Mineral County is appropriately named, as it contains a greater variety of mineral products in proportion to its size than any other of the 17 counties in the State. The principal minerals produced in the past have been gold, silver, copper, lead, tungsten, and quicksilver. In addition, commercial

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

quantities of placer gold and zinc, in the metal group, and salt, soda, borax, sodium sulphate, clay (bentonite), diatomaceous earth, barite, and andalusite, in the industrial mineral group, have been mined in commercial quantities. Turquoise also has been produced for semiprecious gem stones.

The writer estimates that in October 1936, 200 men were employed in the mining industries in the county.

Mineral production of the county from 1910 to 1934 is shown in table 2. The table does not include tungsten and quicksilver production. The production of these two metals for the period given in the table was approximately $1,300,000.

TABLE 2. - Metal production Mineral County, 1910-34

Year	Lode gold		Placer gold		Silver, lode and placer		Copper
	Fine ozs.	Value	Fine ozs.	Value	Fine ozs.	Value	Pounds
1910 1/	8,307.78	$171,737	579.77	$11,985	522,987	$282,413	47,375
1911	4,696.01	97,075	324.06	6,699	165,808	87,878	12,868
1912	3,144.04	64,993	81.90	1,693	320,275	196,969	493,719
1913	6,034.11	124,736	8.22	170	228,832	138,215	769,536
1914	18,132.69	374,836	259.58	5,366	194,762	107,703	244,536
1915	36,063.37	745,496	344.82	7,128	292,242	148,167	433,584
1916	34,264.64	708,313	35.94	743	431,130	283,683	2,986,361
1917	34,470.82	712,575	20.70	428	407,302	335,617	3,461,969
1918	27,957.95	577,942	47.55	983	351,760	351,760	2,228,337
1919	9,204.89	190,282	45.33	937	84,240	94,349	296,815
1920	4,280.99	88,496	-	-	59,021	64,333	70,886
1921	5,199.64	107,486	6.58	136	47,561	47,561	6,184
1922	981.86	20,297	2.18	45	193,919	193,919	5,063
1923	2,928.48	60,537	2.03	42	635,350	520,987	17,942
1924	1,938.09	40,064	8.37	173	103,956	69,650	1,726
1925	2,902.45	59,999	-	-	313,847	217,810	13,282
1926	1,748.61	36,147	-	-	287,696	179,522	57,054
1927	2,139.24	44,222	21.33	441	117,490	66,617	48,962
1928	2,459.00	50,832	-	-	45,890	26,846	22,971
1929	2,009.22	41,534	-	-	37,167	19,810	56,536
1930	1,141.70	23,601	-	-	5,307	2,043	6,538
1931	1,615.38	33,393	18.29	378	2,429	704	-
1932	2,257.47	46,666	42.04	869	7,762	2,189	367
1933	1,897.39	39,223	74.61	1,542	11,837	4,143	1,460
1934	3,659.33	127,894	39.92	1,395	16,380	10,589	5,028
	219,435.15	4,588,376	1,963.22	41,153	4,884,950	3,453,477	11,289,099

1/ Mineral County was part of Esmeralda County prior to 1910.

Continued -

Generated on 2024-09-18 02:47 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

TABLE 2. - Metal production Mineral County, 1910-34 (Continued)

Year	Lead		Zinc		Total value
	Pounds	Value	Pounds	Value	
1910 1/	711,517	$31,307	-	-	$503,459
1911	184,662	8,310	-	-	201,571
1912	298,598	13,437	-	-	358,556
1913	59,632	2,624	-	-	385,023
1914	60,800	2,371	-	-	522,799
1915	221,047	10,389	-	-	987,057
1916	270,734	18,680	-	-	1,746,064
1917	357,876	30,777	-	-	2,024,514
1918	171,660	12,188	-	-	1,493,272
1919	65,204	3,456	-	-	344,232
1920	158,555	12,684	-	-	178,556
1921	111,500	5,017	-	-	160,998
1922	2,056,098	113,085	1,224,000	$69,768	397,798
1923	3,124,176	218,692	2,320,053	157,763	960,658
1924	96,068	7,685	-	-	117,798
1925	740,007	64,381	255,000	19,380	363,456
1926	1,693,400	135,472	910,125	68,259	427,387
1927	654,930	41,261	285,406	18,266	177,221
1928	51,000	2,958	-	-	83,944
1929	40,036	2,522	1,113	73	73,889
1930	4,100	205	-	-	26,699
1931	-	-	-	-	34,475
1932	17,478	524	-	-	50,271
1933	26,603	984	-	-	45,985
1934	9,497	351	-	-	140,631
	11,185,178	739,360	4,995,697	333,509	11,806,313

1/ Mineral County was part of Esmeralda County prior to 1910.

ASHBY DISTRICT

The Ashby district is in an unnamed group of low hills about 20 miles by road a little north of west from Mina. The nearest shipping point is Kinkead Siding, 11 miles to the north.

No water has been developed in the immediate vicinity of the camp; the nearest water supply is probably at Whiskey Springs, approximately 8 miles in an air line to the southwest and at an altitude roughly 1,000 feet lower than that of the camp.

Some prospecting had been done in this area in former years, but no ore was shipped until 1933, when a discovery was made by George A. Ashby of Hawthorne, Nev. The veins are covered with 2 to 20 feet of detrital material and were found by tracing float. Production from 1933 to the time of the writer's visit in June 1936 had been approximately $40,000 worth of shipping ore produced by lessees.

Generated on 2024-09-18 02:50 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Ashby Gold Mine, Inc.

The principal property in the area is Ashby Gold Mine, Inc. This pro ty comprises six unpatented claims owned by J. H. Miller, H. S. Babbitt, a George A. Ashby, all of Hawthorne, Nev. Development work consists of 10 vertical shafts, the deepest of which is 200 feet. Underground workings total about 2,000 feet. These shafts have been sunk by lessees, and seve are equipped with small gasoline hoists and air compressors. In June 193 three sets of lessees were working on the property and combined production averaged about 1 car of ore per month. The royalty paid by lessees varies with the grade of ore shipped and is as follows:

Value of ore	Royalty, percent
$50 or less	10
$50 to $75	15
$75 to $100	20
$100 or more	25

The royalty payments are based on net smelter returns after hauling, freight, and smelter charges have been deducted. Leases are given for 1 month periods and on blocks 150 feet long on the strike of the vein and 200 feet in width.

A series of veins varying in width from 6 inches to 6 feet occurs an altered andesite formation cut by aplite dikes. The principal values in gold with minor amounts of silver.

A shipment of ore made from the Armanko-Cafferata lease to the U. S Smelting and Refining Co. April 1, 1935, provided the following informat

Metal quotation:	Au	34.9125	
	Ag	.77	
Settlement assay:	Au	6.53 oz.	
	Ag	5.0 do	
	Cu	.3 percent	
	Pb	.6 do	
	Insol.	66.0 do	
	Fe	12.4 do	
	S	.9 do	
	CaO	.5 do	
Metal payment:	Au, 100 percent at 32.40		$211.58
	Ag, 100 percent at .77		3.85
			215.43
	Less 0.5 oz. Ag		.39
			215.04
	Treatment charge		6.20
	Net value per ton		208.84

Generated on 2024-09-18 02:44 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

et weight	73,400		
acks (666)	392		
	73,008		
ess Moisture 6.2%	4,526		
	68,482	equals 34.241 tons at $208.84	$7,150.89
reight, at $10.70 per ton		$392.69	
acks returned		2.68	
ailing, at $1.75 per ton		64.22	
oyalty, 15 percent		1,003.69	1,463.28
		Net proceeds	5,687.61

The royalty of 15 percent on this shipment of ore is less than the oyalty payment shown in the table, because in this particular case the essees agreed to do a certain amount of "dead" work in return for a reduc-ion in the royalty.

The haul to Kinkead Siding 11 miles from the property is done under con-ract at $1.75 per ton. The above shipment represents the best shipment of re from the district. The average value of the ore has been $25 per ton.

According to J. H. Miller, the material in the dumps will average $5 er ton. If the ore is screened through a 1/2-inch screen the undersize will verage $12 per ton. The fines constitute about 25 percent of the dump aterial. The mine dumps contain, roughly, several thousand tons.

With the present stage of development in the district, there is not ufficient tonnage of ore in sight to justify the expense of erecting a ill.

AURORA DISTRICT

Aurora, known in the early days as the Esmeralda district, is in western ineral County, 3 miles east of the California-Nevada boundary line and at he head of Aurora Canyon, which is tributary to Bodie Canyon. Aurora is 0 miles by automobile road southwest of Hawthorne via Fletcher's Station. he altitude of Aurora is approximately 7,400 feet above sea level. The rea is quite mountainous, and during the winter months snowfalls are some-imes heavy so that the camp is inaccessible by automobile. Mining, however, an be carried on the year round.

Aurora is supplied with electric energy from the high-tension trans-ission line of the Mineral County Power System.

Water for milling is available at the Prospectus drainage tunnel at regory Flat and at Tamarack Springs, which are reported to have a flow of 4 miner's inches. Tamarack Springs are at an elevation of 9,000 feet nd, according to a survey, the water can be carried to the town by a ravity pipe line 8,300 feet long.

Generated on 2024-09-18 02:42 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Veins carrying gold and silver were discovered here on August 26, 1860, by E. R. Hicks and party while they were hunting for game. Shortly after the discovery a spectacular rush ensued, and the camp of Esmeralda was established on Gregory Flats. Later, the town of Aurora was establish several mines distant from Esmeralda camp. By an act of the First Territorial Legislature, November 25, 1861, Esmeralda County, named after the mining district, was made one of the nine original counties of Nevada, with Aurora as the county seat. The town of Aurora was substantially built, and a number of the houses and stores were constructed of brick and masonry. At present most of the buildings are in ruins, and the general atmosphere of the camp is one of neglect and decay.

In 1864, Aurora had a population of nearly 10,000, but by 1869 the bonanza ore near the surface became exhausted and a considerable part of the population moved to Virginia City. The mines, however, continued to produce up to 1882.

In the early days as many as 17 mills were operating in the district at one time. These mills employed stamps for crushing and the Washoe pan process for recovering the values. Compared with modern processes, the recovery in these early-day mills was low, and the tailings that were available were subsequently cyanided in 1901 and 1902.

In 1912 the Aurora Consolidated Mines Co. was incorporated. This property was purchased in 1914 by the Goldfield Consolidated Mines Co., which erected a 500-ton mill equipped with 40 stamps, each weighing 1,750 pounds. Primary crushing was done with the stamps and fine grinding with 3-tube mills. Countercurrent cyanidation was employed to recover the values. After about 3 years operation the mill was dismantled and the equipment sold.

At present there are two small mills at Aurora. One is a 10-stamp affair erected in 1912 and owned by W. J. McKeough of Aurora. In 1935, the mill was operated for a short time by the Western Consolidated Mines Co. This company ran into financial difficulties and closed down. Mill equipment consists of two 5-stamp batteries (1,050-pound stamps), a ball mill 5 feet by 4 1/2 feet, 2 amalgamation plates, a Dorr simplex classifier and 2 Groch flotation cells. The other mill is a Kincaid mill with a capacity of 2 tons per day and is owned by Freid Walker of Aurora.

In recent years mining activity has been confined to small leasing operations, and the small amounts of ore produced were either shipped to smelters or milled locally. In June 1936, a crew of four men, under the direction of Walter Trent, was employed in sampling old workings.

As in all early-day mining camps, the records of the production of Aurora are incomplete. According to the records of the Wells Fargo Co., the bullion shipped through them up to 1869 had a value of $27,000,000. In addition, there is a record of $2,365,969 shipped without insurance; therefore, it can be stated safely that the output of the district betwee

Generated on 2024-09-18 02:47 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

:e years 1861 and 1869 was about $30,000,000. This sum appears con-
:rvative if statements of production from some of the high-grade stopes
: considered. From 1910 to 1920 the district produced $1,882,861 in
)ld and 128,808 ounces of silver, valued in all at $1,974,290, according
) Mineral Resources of the United States. Production from 1915 to 1917
:de by the Goldfield Consolidated Mines Co. is shown in the following
:ble:

'ABLE 3. - Mineral production of Aurora District, Mineral County, Nev., 1915-17, inclusive.

ar	Ore and tailings, tons	Average value, per ton	Total value
15....	141,421	$3.734	$528,097.00
16....	173,270	2.892	501,041.14
17....	175,477	2.315	406,277.52
Total.	490,168	2.93	1,435,415.66

The mineralized belt is about 2 miles long and 1 mile wide. Total
rkings comprise about 20 miles. The deepest shaft is the Del Monte, which
300 feet deep. The depths of other important shafts are: The Gladiator,
) feet; the Monarch, 400 feet; the Durand, 500 feet; and the Junietta, 450
et. The Prospectus tunnel near the former mill site of the Goldfield
nsolidated Mines is 1 1/4 miles long.

The principal holdings in the area comprise a large group of patented
aims owned by the Goldfield Consolidated Mines Co. Other claims in the
strict are owned by the West End Mines Co., the Aurora Consolidated Mines
., and W. J. McKeough of Aurora. In addition, individuals or groups of
dividuals own from 2 to 7 claims each. Many of the claims are small,
ing 1,500 feet long and 200 feet or less wide.

The formations in the Aurora area are volcanic, probably of Tertiary
e, which have flowed out on a basement of porphyritic granite. The oldest
ows are latites, with associated andesites, on top of which is a rhyolite
ow; above the rhyolite is a flow of basalt.

The ore deposits are quartz veins that fill fissures in the latite
d andesite. Some of these are simple quartz veins that range from 2 to
) feet in width, while others are made up of an interlacing network of
:all veins. The vein filling is principally fine-grained white quartz
:curring in hands and small druses. The veins vary in strike, but in
:neral the strike is northeast-southwest with dips of 45° to 50° to the
)uth.

The rich ores are characterized by irregular streaks made up of quartz,
:laria, tetrahedrite, pyrite, chalcopyrite, and a soft bluish green
:terial supposed to be a combination of gold, and possibly silver, with
:lenium. Free gold is present in the richest ores. The values are principally
:ld, with some silver.

:67

Generated on 2024-09-18 02:47 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

In conclusion, it can be stated that the general impression gained by the writer in a brief visit to the camp is that the district may be worth investigating from the viewpoint of working the properties on a leasing basis. The area contains numerous narrow interlacing veins that are ore-bearing over a large area. A condition such as this in an old camp from which the cream has been skimmed naturally lends itself to the leasing system, whereby a number of men, working separately or in groups of two or three, can mine ore from comparatively small veins unsuited for mass production, provided metal prices are favorable, an equitable royalty schedule and fair milling rates are established, and the lessees can have their ore treated in a local custom plant, which they themselves cannot afford to erect. Some of the best ground could be reserved for company operations. The writer was informed that a custom mill equipped with 20 stamps operated in the district from 1906 to 1911. This mill was erected by J. S. Cain and employed amalgamation with subsequent cyanide leaching of the amalgamation tailings. Ore was ground to 30-mesh. The mill ran entirely on custom ore and had a capacity of 60 tons per day. The increas price for gold is an important factor in considering an investigation of t possibilities of the district.

The writer has been informed that a number of the old mine dumps car values from $6 to 11 per ton and that approximately 35,000 tons of such material is available in 12 different dumps. This information would have to be checked by thorough sampling.

BASALT DISTRICT

Basalt is a station on the narrow-gage railroad that operates betwee Mina, Nevada, and Keeler, Calif. It is 22 miles west of Coaldale, Esmera County, Nev., and is accessible from this place by an excellent highway.

A deposit of diatomaceous earth approximately 3 miles long and 1/2 mile wide occurs in the vicinity of Basalt. This deposit has been pros- pected by a number of shafts and open cuts. The deepest shaft is 135 fee and the bottom is still in diatomaceous earth. The depth of the over- burden, which consists of desert wash and a few basalt boulders, is not more than a few feet. Although this occurrence of diatomaceous earth has been known since 1905, only small shipments have been made. The last shipments were made in 1927 and 1928, when about 5,000 tons of the material was shipped to Los Angeles for filtering and construction pur- poses. For all practical purposes the supply of diatomaceous earth is un limited.

Somerville Group

Robert D. Somerville of Basalt owns a group of 16 claims of 40 acres each, covering part of the deposit. The earth could be mined easily with a power shovel, and, in one place the distance to the railroad is not mor than 1/4 mile. When shipment is made by rail, the material would have to

Generated on 2024-09-18 02:42 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

e transferred from narrow-gage to standard-gage cars either at Mina, Nev., r Keeler, Calif.

On the Somerville ground, about 2 miles east of Basalt, is a deposit f pumicite. This deposit was shown to the writer and reported to be lunite. Microscopic examination of the material, however, shows that t is composed entirely of fine grains of silica. The deposit is 10 eet wide and dips 60 degrees; both walls are diatomaceous earth. It as been prospected by an open cut about 15 feet long and a maximum of) feet deep.

Diatom Company

A company called the Diatom Company, controlled by Langlois Brothers, 17 South San Pedro Street, Los Angeles, Calif., also owns 16 claims cover- ng the diatomaceous earth. Most of the production of the diatomaceous arth has been made by this company.

BELL DISTRICT

The Bell, also known as the Cedar Mountain District, is in the Cedar ountain Range in eastern Mineral County near the Nye County border. It ncludes the camps of Omco, Simon, and Copper Contact. Simon is 22 miles y road northeast of Mina, and Omco lies 4 miles north of Simon. The rincipal properties in this area are the Simon and Omco mines.

Simon Silver-Lead Mines, Inc.

The Simon mine was discovered in 1879, at which time small quantities f lead ore mined from the gossan were shipped. Its importance was not iscovered, however, until 1919, when silver-bearing lead-zinc ores were iscovered in the sulphide zone below the gossan that had been prospected n 1879.

In 1921 the Simon Silver-Lead Mines Co. erected a 100-ton flotation ill at the mine. In 1923 this company was reorganized under its present ame and the mill enlarged to handle 250 tons per day. Up to 1927 the ill, operating at four different periods, had treated 93,000 tons of ore nd produced 6,258 tons of lead and 5,311 tons of zinc concentrates having gross smelter value of $741,378. The mill closed in January 1927.

Property consists of a contiguous group of patented and unpatented laims amounting to 600 acres. In the acquisition of this acreage the resent company absorbed 7 smaller companies.

The Simon mine is opened by a 3-compartment vertical shaft 800 feet eep and a winze sunk to a depth of 200 feet from the 800-foot level. otal underground workings comprise in the neighborhood of 25,000 feet. he shaft and underground workings are reported to be in good shape, but, ecently the mine has been allowed to fill with water to the 450-foot level.

Generated on 2024-09-18 02:44 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Mining equipment includes a 150-horsepower hoist, a compressor, a dri sharpener, pumps, lighting plant, and camp buildings.

Mill equipment includes a No. 5 Allis Chalmers gyratory crusher, a No 3 Kennedy gyratory crusher, a 6- by 10-foot Allis Chalmers tube mill, a 62 1/2-inch Marcy ball mill, 2 Dorr drag classifiers, 26 18-inch sub-A mineral separation flotation cells, 2 5- by 6-foot Oliver filters, and 4 Dorr thickeners.

Purchased power is available at the property.

The geology of the district has been described by Knopf5/, who stated that the ore bodies are replacement deposits in limestone localized along an alaskite dike about 30 feet wide. The minerals in the sulphide zone are argentiferous galena and zinc blende associated with subordinate amou of pyrite and chalcopyrite in a gangue of calcite and limestone.

Considerable development work was done after the mill closed in 1927 and, according to J. H. Simpson, manager of the property, about 100,000 tons of ore have been blocked out. The average value of this ore, as determined from development samples, was stated to be as follows:

Au	0.04 oz.
Ag	0.0 oz.
Pb	9 percent
Zn	8.5 percent
Cu	.2 to 3 percent

The intense faulting and other complicated geological features of th mine, together with the grade of the ore, has made it impossible to opera profitably under the conditions that prevailed in the base-metal market i recent years.

Omco Mine

The Omco mine is 25 miles northeast of Mina at the north end of the Cedar Range.

The Royal George group of nine claims was located in 1915 by James Nelson. The property was sold shortly after to San Francisco interests that organized the Olympic Mines Co. Omco is an abbreviation of the nam of this company.

The Olympic Mines Co. erected a 70-ton cyanide mill in 1917. This mill burned down in 1919 and another of 80 tons capacity was built in 19 which closed in 1921. The mine has been operated at various times by lessees, and in 1929 it was sold at a tax sale. On December 20, 1932,

5/ Knopf, Adolph, Ore Deposits of Cedar Mountain, Mineral County, Nev.: U. S. Geol. Survey Bull. 725-H, 1933, 20 pp.

Generated on 2024-09-18 02:49 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

ine workings were caved by a severe earthquake that occurred in this icinity. In 1936, the mine and mill were being rehabilitated by J. H. mpson and associates of Simon.

Production, principally by the Olympic Mines Co., has been about 00,000, principally in gold. About 35,000 tons of ore, at from $15 to 0 per ton, were treated in the two mills, and in addition considerable re was shipped.

The Omco mine is developed by a shaft 225 feet deep, inclined 43 de- rees. Total lateral workings comprise about 3,000 feet.

The Omco mill equipment includes a Hendy crusher, a 6- by 1 1/2-foot ndy tube mill, a 5- by 6-foot Hendy ball mill, a Dorr duplex drag classi- er, two 12- by 14-foot Oliver filters, two 12- by 18-foot Dorr agitation nks, three 12- by 24-foot Dorr thickener tanks, pumps, refinery and other anding equipment.

An extraction of 93 percent is reported to have been made in milling. e mill-tailings dump, which contains about 35,000 tons, has been sampled veral times, but the sampling results are not available.

The mine and mill are served with power by a branch transmission line om Simon.

In 1936 a 2-inch-diameter pipe line 4 miles long was laid to carry ter from the collar of the Simon shaft to Omco by gravity.

The Olympic vein occurs in rhyolite and trachyte covered in places ith tuff. The vein averages 4 feet in width and consists of quartz and ore or less silicified rhyolite. Values are chiefly in gold, which is visible, and the best ore is chalky in appearance with no sign of neralization. The vein has a dip of 43 degrees to the 100-foot level, om which point it becomes flatter to the 150-foot level. To the west e vein has been cut by a fault, and the displaced segment has been lost r eroded.

Golden Mile Group

The Golden Mile group of four unpatented claims owned by J. H. alsh of Mina is at Copper Contact, 22 miles by road northeast of Mina nd several miles south of Simon.

This property was discovered in 1902 by Jesse Workman. In 1935 it as worked under bond and lease to Henry Ott of Reno and associates, who hipped approximately 4,000 tons of ore and relinquished the option. otal production of shipping ore is reported to be about 10,000 tons.

Development consists of three tunnels and other workings, totaling bout 1,000 feet. The ore mined has been taken from an open-cut several undred feet long, 25 feet deep, and 30 feet wide.

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

In 1936, J. H. Walsh mined several carloads of ore by hand methods. The smelter returns on a carload of ore shipped by Walsh to the American Smelting and Refining Co. smelter at Salt Lake City on May 12, 1936, furnished the following data:

Metal quotation:

Au	34.9125	
Ag	.77	
Cu	9.15 less 2.525	per pound.

Settlement assay:

Au	.345	oz.
Ag	1.15	oz.
Cu	1.66	percent
Insol ..	14.3	percent
S	.5	percent
As	.3	percent
Fe	16.4	percent
CaO	19.3	percent

Metal payment:

Au at $31.81825		$10.98
Ag 95% at .77		.84
Cu less 0.4% at 1.325 ...		1.67
		13.49

Treatment charge:

Base rate	1.35	
Penalties and premiums.	1.56	
	2.91	2.91
Net value per ton		10.58

Wet weight	104,280 pounds		
Less 4% moisture	4,172 pounds		
Dry weight	100,108 pounds	equal 50.054 tons at $10.58	$529.5
Freight .....$3.60 per ton		187.70	
Hauling .....$2.50 per ton		130.35	
Assaying		4.00	
		322.05	322.0
Net proceeds			207.5

The deposit is a flat-lying vein in magnesian limestone near a gra intrusive. Values are chiefly in gold with minor amounts of silver and per. The gangue consists mainly of iron oxide and calcite. An analysis the ore made by the Union Assay office on 2 carloads shipped to the sme was as follows:

Generated on 2024-09-18 02:44 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Au	0.26	oz.
Ag	1.2	oz.
Pb	None	
Cu	2.06	percent
Insol	14.2	percent
Zn	.6	percent
S	.2	percent
Fe	33.1	percent
Lime	9.0	percent
Sb	None	
As	Trace	
$MnCO_3$	Balance	

From the analysis, this is an unusual and complex type of gold ore. etallurgical tests have not been made to determine whether or not this ype of ore can be treated by flotation.

Clay Peters Group

The Clay Peters group of three unpatented claims owned by Mrs. Clay eters of Los Angeles, Calif., is 12 miles northeast of Mina.

Property was last worked in 1935 by William Myers of Omco and two artners, who shipped 14 cars of ore that averaged $18 per ton. Royalty aid by Myers was 15 percent of the net smelter returns. The trucking ost to Mina was $2.25 per ton. Property was idle in 1936.

Development consists of a shaft 240 feet deep and some lateral work- gs. Equipment includes an Ingersoll Rand Imperial Type 12 compressor riven by a Waukesha gasoline engine. The hoist has been removed from the roperty.

The orebody is an irregular deposit in limestone. Values are chiefly n gold, with small amounts of lead and copper in a siliceous gangue.

Harvey-Taylor Group

The Harvey-Taylor group of five patented claims owned by J. A. Ashby f Hawthorne, Nev., is 20 miles by road northeast of Mina and 1 1/2 miles est of Simon. A small amount of shipping ore has been produced in the past y lessees. In 1936 the property was idle.

Development work consists of two tunnels, 100 and 165 feet in length, riven on the vein, and two winzes, one 100 feet and the other 150 feet deep. here is no equipment on the property.

Water for milling is available from Storey Springs in the vicinity. he estimated flow from these springs is 12 gallons per minute.

Generated on 2024-09-18 02:47 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Formation is andesite. The vein has a width of 2 feet on the surfac and 4 to 6 feet at the tunnel levels. Vein is said to be exposed for a length of 650 feet, and the dip averages 50°.

Values are in gold and silver. The gold is largely free-milling. According to Ashby, property has been sampled by several engineers and ap proximately 30,000 tons of ore averaging $5 per ton, at current metal pri are reasonably assured.

Finger Rock Quicksilver Mining Company, Inc.

The Finger Rock Quicksilver Mining Co., Inc., Kenneth D. Holland, president, is a small stock company recently formed by Los Angeles people The company owns a group of three unpatented claims several miles northe ly from Omco. The property is 26 miles northeast of Luning, Nev., by way of Santa Fe Pass.

This property has produced 5 flasks of quicksilver. In 1936, four m were employed in driving a tunnel to explore the deposit at depth.

Development work consists of a tunnel 250 feet long and a shaft 50 feet deep. Equipment includes one-drill compressor and a 25-ton capacit Cottrell furnace recently installed.

A shear zone contains cinnabar in rhyolite.

Diatomaceous Earth

About 4 miles easterly from Copper Contact, near the Mineral-Nye Co boundary line, diatomaceous earth is to be found. The nearest shipping point is Mina, about 25 miles from the deposit.

About 1925, a company, called The Nature Products Co., held over 20 acres of diatomaceous-earth lands in this area and is reported to have shipped 3 carloads to Reno for the production of tooth powder and dental cream.

The deposit is exposed on the surface over a considerable area and the material is said to be of good quality.

Although this deposit could supply large quantities of diatomaceous earth for the building trades, the low price paid for such material and distant markets makes it difficult to compete with other sources of suppl

BROKEN HILLS DISTRICT

The Broken Hills district is in the northeastern corner of Mineral County in a group of low hills between the Fairview and Ellsworth Ranges It is accessible from Fallon which is on the main line of the Southern Pacific R. R. and 70 miles to the northwest.

Generated on 2024-09-18 02:48 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Silver-lead ore was discovered here in 1913 by James Stratford and oseph Arthur. Stratford and Arthur worked the property until 1920, when t was sold for $75,000 to a company called the Broken Hills Silver Corporation, financed by George Graham Rice's Fidelity Finance and Funding Co. his company ran into difficulties and a reorganization was effected in 921. After the reorganization, some ore from the Broken Hills mine was reated in a 50-ton cyanide mill at Bruner 12 miles distant. Several other mall companies were organized in the twenties to work properties in this istrict, but all these companies have passed out of existence.

The original owners are reported to have shipped ore to the value of 75,000. Lessees have made intermittent shipments of ore totaling about 15,000. Total production of ore probably exceeds $100,000.

The ore occurs in narrow, steeply dipping veins in andesite. Two eins have been found on the property, formerly owned by the Broken Hills ilver Corporation. The vein filling consists of crushed and altered andeite with minor amounts of quartz. The ore contains lead, silver, some zinc, nd a little gold. Virtually all the ore mined has been taken from the xidized zone, which extends to a depth of 150 feet from the surface.

Broken Hills Mine

Ground formerly owned by the Broken Hills and Belmont companies was relocated in 1936 by George M. Lerchen, of Broken Hills, and associates. The revious owners neither filed claim for exemption of assessment work nor did ny assessment work, so the ground was relocated by Lerchen and associates. he surface equipment was bought in at a tax sale. The Lerchen property omprises four unpatented claims.

Development work consists of Broken Hills shaft, 600 feet deep; Belmont haft, several hundred feet deep; and approximately 6,000 feet of underround workings. All mining equipment except a 15-horsepower Fairbanks orse hoist at the Broken Hills shaft has been removed.

In October 1936, Lerchen and partner were working on a vein on the 50-foot level from the Broken Hills shaft. The width of the vein ranged rom 18 inches to 2 feet, and the owners had mined 15 tons of ore reported o average 100 ounces of silver. Mining was done by hand. According to erchen's sampling, the Broken Hills ore dump, which contained an estimated 0,000 tons, will average 15 ounces of silver. In addition, approximately 0,000 tons of the same grade of ore are said to be available in the Broken ills workings.

The nearest water supply is at Halley's well in Lodi Valley, 10 miles istant. The well is reported to be 140 feet deep.

The cost of trucking ore to Fallon for shipment is $4 per ton on contract; 25 miles of this haul is over desert road and 45 miles over the incoln Highway.

Generated on 2024-09-18 02:42 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Silver Trailer Group

The Silver Trailer group of five unpatented claims owned by V. S. Bax of Fallon adjoins the Broken Hills Mine. This property is developed by a 100-foot shaft and about 1,000 feet of lateral workings.

According to Baxter, the only production from this property is 1 car-load of ore shipped several years ago. This ore averaged 80 ounces of sil and 22 percent lead per ton. Property has been idle for several years.

Baxter Mine

The Fluorspar group of eight unpatented claims owned by Vet. S. Baxte of Fallon, is 6 miles west of Broken Hills. The nearest shipping point is Fallon, on the main line of the Southern Pacific R. R., 70 miles northwest This fluorspar deposit was discovered and located by Baxter in 1922; since its discovery, intermittent shipments totaling approximately 3,500 tons have been made. Fluorspar is used for fluxing in the steel industry on th Pacific coast.

No attempt has been made to concentrate the fluorspar other than by selective mining and hand sorting. No water is available in the immediat vicinity of the mine, but probably water could be developed within a radi of 10 miles.

Development work comprises three shafts (the deepest of which is 110 feet) and underground workings totaling about 1,000 feet.

The fluorspar is in veins in a formation said to be andesite. The m vein is traceable on the surface for a distance of at least 3,000 feet. strike of the vein system is about east and west, and the dip is 55° to t north. The width ranges from a few inches to a maximum of 10 feet. The wall of the deposit is a well-defined fault, but in the hanging wall a n of stringers of fluorspar, ranging from a few inches to 1 foot in width, branch off from the main vein. The chances for finding additional parall veins either in the footwall or hanging wall of the deposit are favorable

Mining has been confined to the production of shipping ore whenever has been a market for the product. At the time of the writer's visit in October 1936, two men were employed in working the deposit on contract. ing is done by hand and the open-stope method of mining is employed. A horsepower Fairbanks-Morse gasoline engine and 800-pound bucket are used hoisting.

A high-grade product is produced by selective mining and hand sorti Pieces of waste shot down with the ore are sorted by hand. The minimum mined averages about 18 inches. The shipping product contains an avera about 95 percent fluorspar, 1 percent silica, and smaller amounts of iro manganese, and aluminum.

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

CANDELARIA DISTRICT

The Candelaria district also known as the Columbus district, is in the Candelaria Mountains at an altitude of 5,665 feet above sea level, 22 miles south of Mina by automobile road. Silver veins were discovered here in 1863 by a party of Spaniards. The Northern Belle, the oldest and most productive mine, was located in 1864 and in the same year was acquired by Messrs. Bateman, Allen, and Holmes. Subsequently this property was abandoned, to be relocated in 1870 by A. J. Holmes. In 1873, a company was incorporated to work the Northern Belle property, and in the same year a 20-stamp mill and 3 White furnaces were erected at Belleville 8 miles from the mine. With the successful development of the Northern Belle property, attention was attracted to the district, and it became the most productive silver camp in Esmeralda County and one of the foremost in Nevada. The 20-stamp mill erected at Belleville was equipped with 10 pans and 6 settlers for treating the ore by the Washoe process (amalgamation in pans heated by steam).

In 1876, a second 20-stamp mill, equipped with 12 pans and 6 settlers, was erected by the Northern Belle Co. at Belleville. The two mills had a combined capacity of 120 tons of ore per day. Power was generated with steam, pine wood being used for fuel. An old report states that the two mills required 1,000 cords of pine wood per month. Other companies erected mills at Columbus and Sodaville. The value of the ore treated in the early days averaged from $45 to $60 per ton.

In 1883, the Holmes Mining Co., whose property adjoined the Northern Belle, sued the latter company for trespass and sought compensation for ore extracted from its ground. The court awarded the Holmes Mining Co. $360,000 damages, and the Northern Belle Mining Co. mine and mills were sold by the United States marshal in 1884 to the Holmes Mining Co.

As the bonanza ore of the early days became exhausted, the camp declined and fell into decay. The last important revival of activity in the district was in 1919, when the Candelaria Mines Co. was organized. This company was a consolidation of the most important mines, including the Argentum, Mount Diablo, and other properties of less importance.

In 1882, water was brought to Candelaria by gravity from the White Mountains. The pipe line has a diameter of 4 to 5 inches and is 27 miles long. It is still in serviceable condition.

From 1913 to 1918 about 125,000 tons of old tailings at Belleville were re-treated in a 120-ton cyanide plant.

The total production of the district in the early days is reported to have been $20,000,000. According to a report of the Mint,6/ by the end of

6/ Director of the Mint, Report for 1883, p. 508.

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

1883 the total amount of silver bullion aggregated $10,000,000, out of wh about $2,000,000 had been paid as dividends.

From 1903 to the present time production has been in excess of $1,000,000.

Argentum Mining Co.

The Argentum Mining Co. property includes the Northern Belle and Hol mines and other mineral acreage in the Candelaria district. Fred G. Grub 241 Sacramento Street, San Francisco, Calif., is the western representati of this company. In 1918, the Argentum holdings were leased to the Cande laria Mines Co. Lease was canceled in 1927 for failure to comply with it provisions. In 1922, the Candelaria Mines Co. erected a 300-ton cyanide plant, which operated at intervals until September 1925. A large proport of the ore treated consisted of tailings and material from mine dumps. Considerable difficulty was encountered in the metallurgy. This mill has been dismantled.

Property is developed by the Northern Belle and Argentum shafts, the latter 1,365 feet deep, and many miles of underground workings.

According to Knopf 7/ the rocks of the district consist of a steeply dipping series of cherts, argillites, and felsites intruded by peridotite or allied rock and quartz monzonite porphyry. Resting uncomformably on t group of older rocks is a series of Tertiary volcanics, mainly rhyolite, lavas, and tuffs capped in places by basalt flows.

The ore deposits are highly oxidized manganiferous silver veins most several hundred feet in length and a few feet wide, broken up by complex fissures. No silver minerals are visible, and the value of the ore can b determined only by assay. The amount of gold in the ore is of minor im- portance. The veins are fairly persistent and dip at high angles. The deepest workings are 1,365 feet vertically below surface, and at this depth water level has not been reached. There is said to be little hope at depth, either in grade or quantity of ore.

According to Fred G. Gruby, several reports on the property made by prominent engineers give estimates of ore reserves in excess of 200,000 tons and averaging 10 to 15 ounces in silver.

Secretary Lode Mines Co.

The Secretary Lode Mines Co. owns five claims in the Candelaria Dist between the Mount Diablo and Lucky Hill mines. In the fall of 1936 this was reopened under the direction of Mark G. Bradshaw of Tonopah. A carlo of ore was shipped from the property in September 1936.

7/ Knopf, Adolph, The Candelaria Silver District, Nevada: U. S. Geol. Su Bull. 735-A, 1922, 22 pp.

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

The property is developed by a 600-foot shaft and tunnels, which with her workings total about 1 1/2 miles. Equipment includes two Chicago ematic compressors and rock drills.

Turquoise and Variscite

Turquoise and variscite deposits were discovered in the Candelaria untains in 1908 by A. L. Dees and Edward Murphy. One deposit is several les northwest of the deserted camp of Columbus and the other is 2 miles st of Rock Hill siding on the Southern Pacific R. R. between Redlich and aldale. These deposits have been worked intermittently for gem material en market conditions were favorable.

The production of gem material from these deposits is not a matter record. According to Carl Reik, who until recently held turquoise claims ar Columbus, more than 1,000 pounds of turquoise has been produced by him nce 1916.

The Reik group of three claims was sold in 1936 to W. F. Godber, owner the Western Gem and Jewel Co., 1639 Wooster St. Los Angeles, Calif., olesale dealers in turquoise. This company uses approximately 25 pounds turquoise per day for gem stones.

According to Godber, Nevada turquoise is the finest produced in the ited States, and much of the material is sold in foreign countries, in- ding England and India, for semiprecious gems.

The turquoise occurs in limestone and shale formation, principally as inlets along joints or fissures. The veinlets range from knife-blade thick- ss to a maximum of 1/2 inch. The joints or fissures are quite local and n be traced only a few feet in any direction. The turquoise is closely sociated with variscite, which is sometimes mistaken for turquoise.

In October 1936, three men were employed in mining the turquoise. Con- derable patience is required because explosives cannot be used and the ound is fairly hard. According to Godber, the quality of the turquoise proves with the hardness of the enclosing rocks. Mining is done mainly open-cuts, and three men can produce about 1 pound per day.

DOUBLE SPRINGS MARSH DISTRICT

Double Springs Marsh is about 8 miles east of Schurz, a station on the ina Hazen branch of the Southern Pacific R. R. at the north end of Walker ke.

The only mining activity on the marsh occurred about 1898, when the ccidental Alkali Co. produced a considerable amount of high-grade soda.

Double Springs Marsh is a typical dry-lake deposit formed by the evapora- ion of mineral-bearing waters derived from drainage from the surrounding

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

mountains and probably to some extent from hot springs and water of volcanic origin. The dry lake is elliptical in outline, having a length of 4 miles and a width of 1 mile. According to Knapp,8/ the deposit comprises about 800 acres, 500 of which are covered with a deposit of salts ranging from 2 to 14 inches in thickness, averaging about 6 inches.

The average composition of the surface salts is as follows:

	Percent
Sodium carbonate	20
Sodium bicarbonate	25
Sodium sulphate	15
Sodium chloride	10
Water	15
Sand and insoluble matter	15
	100

Beneath this surface incrustation is a body of soda clay filled with soda crystals; strong soda solutions constantly rise to the surface by capillary attraction and the salts are deposited by evaporation of the water. This process is slow when the top incrustation is undisturbed, but when that is removed the accumulation of salts on the stripped portion is about 1 inch per year; hence the deposit, when worked, is constantly renewing itself.

The process employed by the Occidental Alkali Co. to produce sodium carbonate has been described by Knapp, and the following has been abstracted from his description: The crude soda stripped from the surface accumulation of salts was first dissolved in hot water in a tank agitated with a revolving arm. When the density of the solution reached about 28° B., the contents of the agitator were drawn into a covered settling tank, where the sand and clay were settled out. The clear solution was drawn off and conveyed by hose to a carbonating cylinder 18 feet long and 6 feet in diameter mounted on rollers and fitted with a 12-inch opening in the center. When the cylinder had been filled the door was sealed and connection made with a carbonic acid receiver where the gas was stored under pressure of 30 pounds per square inch. In this virtually all the carbonates were changed to bicarbonates, the cylinder was discharged, and the solution and the precipitated bicarbonate were sluiced to a cooling and precipitating vat. As the solution cooled, the bicarbonate in suspension was thrown down rapidly when the temperature fell under 100° F. The solution containing chloride and sulphate and some carbonates was drawn to waste leaving the precipitated bicarbonate in the vat. The bicarbonate was washed with cold water to dissolve any sulphate and chloride attached to the crystals of bicarbonate.

After being washed, the bicarbonate was drawn from the vat to a centrifuge, which threw out the remaining solution and left a mass of pure bicarbonate crystals. The bicarbonate was then placed in a stationary, gas-tight retort furnace equipped with stirring arms and externally fired. The gas evolved was conducted through a pipe to a cooling scrubber and thence to a compressor, which compressed and stored it in a receiver

8/ Knapp, S. A., Occurrence and Recovery of Sodium Carbonate in the Great Basin Region: Mineral Industry, vol. 7, 1898, pages631-634.

Generated on 2024-09-18 02:48 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

The gas was drawn off from the receiver for use in carbonating a fresh lot of solution. When the calcination was completed, the soda was delivered to a grinding mill, where it was ground and packed for shipment. The finished product was extremely pure anhydrous carbonate.

EAGLEVILLE DISTRICT

Eagleville, also known as the Hot Spring district, is in northeastern Mineral County 11 miles, by road, east of Rawhide. A number of gold-silver deposits in this area have been worked intermittently since the eighties, but only small amounts of shipping ore have been produced. Principal production, from the viewpoint of tonnage, has been barite from the Highland group of claims.

Highland Group

The Highland group of seven unpatented claims is owned by A. Blundell, of Sparks, Nev., and associates. In 1929 and 1930 this property was leased to the American Development Co. of San Francisco, which shipped 9,000 tons of barite to Oakland, Calif. The barite was mined on a royalty basis of $1 per ton.

Small shipments of gold-silver ore have been mined from veins at the south end of the Highland group.

Development includes three shafts and two tunnels. The deepest shaft is 200 feet. Total workings comprise about 3,500 feet.

The barite occurs in a fissure vein ranging in width from 6 inches to 8 feet. The vein is traceable on the surface for 2,700 feet. The barite is reported to average 96 percent barium sulphate. With favorable market conditions this property can produce a considerable tonnage of barite.

The haul to Fallon, the nearest shipping point, is 50 miles; 32 miles is over macadam highway and 18 miles over fair desert road.

Other Claims

The Rovada Mining Co., owned by Robert Ringling, comprises a group of 12 claims 4 miles south of Rawhide Hot Springs. In 1936 a lessee made four small shipments of gold ore from this property.

At Camp Sunnyside 12 miles northeast of Rawhide Hot Springs is a group of 11 claims owned by Tom Kenyon. Occasional shipments of gold and silver ore have been made from the property by Kenyon.

Mrs. M. R. Wedell of Rawhide Hot Springs owns six scattered claims in this area. Five of the claims have been located for gold and silver and one for molybdenum. All of these claims are in the prospect stage.

Generated on 2024-09-18 03:04 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

FITTING DISTRICT

The Fitting district comprises an area roughly 16 miles long and 6 miles wide in the southeast end of the Gillis Range in central Mineral County. No important mines have been found in this area, and in recent years the metal production has been small. The most recent mining develop ment in this region is the production of andalusite rock from an unusual deposit on the southern flank of the Gillis Range. This is the only commercial occurrence of andalusite in Nevada.

Dover Group

The Dover group of three unpatented claims owned by B. H. Donnelly o Hawthorne is 5 miles east of Thorne, the nearest shipping point. The pro erty is known as the Donnelly andalusite mine.

Andalusite rock was discovered by Donnelly in this area in 1929. In 1936, the property was leased to the Tillotson Clay Co. of Los Angeles fo a 3-year period. Six men are employed at the property, and the productio up to October 1936 was 450 tons of andalusite rock. The material is shi to the Tillotson Clay Co. plant at Los Angeles for the manufacture of re- fractories.

Development work includes a 1 1/2-compartment vertical shaft 50 feet deep, two open-cuts, and a number of surface trenches. Workings comprise a total of 200 feet. The largest open-cut at the west end of the deposit is 30 feet long, 18 feet wide, and 15 feet deep. The shaft has been sunk near this cut, and a crosscut 56 feet long has been driven from the botto of this shaft. Both shaft and crosscut are in andalusite rock. About 2, feet to the east of the shaft the second open-cut has exposed the andalus for a width of 25 feet, a length of 20 feet, and a depth of 12 feet.

Equipment on the property includes an Ingersoll Rand Imperial Type 14 portable compressor, an Essex geared hoist driven by a gasoline engine and a blacksmith shop. Hoisting is done with 1,000-pound capacity bucket

The andalusite formation strikes approximately east and west. Near the shaft the andalusite rock is covered with a mantle of surface debris and clay up to 12 feet thick. The clay and surface debris are traversed with seams of gypsum.

In addition to andalusite, the rock contains corundum, quartz, seric and probably a little dumortierite. There is considerable variation of t mineral constitutents in the rock. Corundum predominates in some specim while in others andalusite is the most abundant mineral. After the mate is mined it is hand-sorted into two grades, according to specific gravity and mineral constitutents.

Insufficient work has been done to block out tonnage, but in all probability this deposit contains large reserves.

Generated on 2024-09-18 02:44 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Other Andalusite Claims

Five miles east of the Donnelly property is a group of claims located or andalusite. This group is owned by Joseph Maltesta of Hawthorne and ssociates.

Another group of 5 claims near the Donnelly property is owned by Peter ich and William Ray of Hawthorne. This group of claims is also under ease to the Tillotson Clay Co.

Only a small amount of development work has been done on either of he afore-mentioned properties, and no shipments have been made.

Chiatovich Group

A deposit of bentonite occurs about 9 1/2 miles north of Hawthorne n the foothills of the Gillis Range near the south end of Walker Lake. he nearest shipping point is Thorne, 3.3 miles south.

The deposit is covered by three unpatented claims owned by Martin M. hiatovich, of Hawthorne. In 1936, the deposit was worked on a royalty asis by the Naval Ammunition Depot at Hawthorne. The bentonite is used o prevent water seepage in a reservoir constructed at the Depot.2/ Up o October 1936, the Navy had used approximately 1,500 tons for this urpose. The bentonite is mined by hand shoveling.

The bentonite outcrops in places over an area at least 2,000 feet ong and several hundred feet wide. Portions of the deposit are covered ith iron-stained soil to a depth of 3 feet or more. No attempt has been ade to determine the extent of the deposit, but from surface indications large tonnage is indicated.

Mica

On the north slope of the Gillis Range 22 miles northeast of Hawthorne ia Ryan Canyon is an occurrence of mica. No production has ever been made.

Mica of the muscovite variety is exposed in a shallow shaft sunk 12 eet on the deposit. The mica is in three parallel veins that dip about 50. The veins range in width from 12 to 20 inches. Country rock is ranite. The mica is present in the veins as an intergrowth of crystals hat average several inches in area, and in blocks up to 1 inch thick. Its color in thick plates is dark green, but in thin sheets it appears colorless and transparent. Most of the plates show checks and corrugations.

2/ Bentonite clay has the peculiar property of forming a colloid and absorbing several times its weight of water, swelling in the process to as much as 10 times its dry volume. Because of this property, it has been found suitable for sealing crevices in irrigating ditches, water reservoirs, and the like, where water is lost through seepage.

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

The material occurs in sheets too small for sheet mica. It is prob suitable only for grinding purposes.

Graphite

On the west side of Winwan Flat, about 26 miles south of Rawhide an in the vicinity of the mica deposit, is a deposit of graphite. It was di covered by J. A. Kelly, of Rawhide, in 1916. None has ever been produce

The graphite occurs as a vein in granite. The vein has been prospec by several open-cuts. The workings were caved so that the character of t material and the probable extent of the deposit could not be determined.

Iron

Deposits of iron ore are reported to occur in the southern part of t Gillis Range about 10 miles northwest of Acme Siding on the Southern Paci R. R. The deposits are inaccessible by automobile. Several prospectors have informed the writer that the deposits are quite extensive and consis principally of hematite.

Fick Mining Company

The Fick Mining Co. property, controlled by H. J. Fick of Hawthorne, comprises 29 unpatented claims in four groups. The Gold Basin, Greenman, and Paymaster groups are in the Fitting district several miles northeast of Kinkaid Siding, and the 1917 group is in the Hawthorne district. This company was incorporated about 1926 as a reorganization of the Nevada Cre and Copper Co. In recent years the property has been worked sporadically by lessees, who produced only a little.

In 1936, J. R. Parker and associates acquired the Fick Mining prope under bond and lease, and several men were employed in rehabilitating the mill preparatory to retreating the tailings dump.

It is said that the tailings, comprising about 8,000 tons, average $5.40 in gold. These tailings were derived from ore taken from the La Pa Montreal, and other mines in this area. Parker planned to install flotat equipment in the mill to recover the values in the tailings.

The mill, situated a short distance east of Kinkaid Siding, is equi with a small crusher, a 4- by 4-foot ball mill, and a Wilfley table. Wat for milling is available from a well 90 feet deep near the millsite.

The Fick Mining Co. properties are developed by several shafts, the deepest of which is 600 feet, and over 1 mile of underground workings.

Formations are principally shale and limestone intruded by quartz monzonite. Ore occurs as lenses and stringers along bedding planes of the limestone. Values are in gold, silver, and copper.

Generated on 2024-09-18 02:42 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Hawaiian Group

The Hawaiian group of four unpatented claims owned by B. H. Donnelly, of Hawthorne, is in Ryan Canyon 5 1/2 miles northeast of Thorne, a station on the Hazen Mina branch of the Southern Pacific R.R. This property was discovered in 1906 by a man named Ryan, after whom the canyon was named.

No production has ever been made from the property. Prospecting work consists of a shaft 50 feet deep and some surface cuts, evidently made in search for shipping ore which was not found in commercial quantities. Property has been idle for many years.

The nearest water for milling is on the flat near Thorne, approximately 1,500 feet lower than the deposit.

The interesting feature of the property is a prominent outcrop ranging from 150 to 600 feet in width and traceable on the surface for nearly a thousand feet. This outcrop shows considerable silicification, and, according to Donnelly, samples taken at various places along the outcrop assayed $2.50 to $14 per ton. Values are in gold and silver associated with small amounts of copper, manganese, and iron oxides. Sampling done has been insufficient to determine the average value of the material.

GARFIELD DISTRICT

The Garfield district is at the northern end of an unnamed mountain range situated south and west of Soda Spring Valley. Acme, a siding on the Southern Pacific R. R., is 6 miles north. The district is accessible by automobile road either from Mina, 20 miles southeast, or Hawthorne, 24 miles northwest.

Silver-gold ore was first discovered in this area by Joshua Mass and Amos Everson in 1882. From 1882 to 1887, the Garfield mine (formerly known as the Blue Light) is said to have produced several million dollars in shipping ore. About 1890 an English company called the Hampton Plain Exploration Co. acquired the Garfield mine and erected a 10-stamp mill at Garfield Springs 9 miles south of the mine. To judge from the tailings at Garfield Springs, roughly 5,000 tons of ore were treated. In 1935, an unsuccessful attempt was made to treat these tailings by cyanidation.

About 1922 the Mabel mine, adjoining the Garfield, was acquired by the West End Consolidated Mining Co. Since 1922 this mine has been a small but consistent producer of high-grade shipping ore. From 1922 to 1929 the Mabel mine is reported to have yielded 4,310 tons of ore having a gross value of $421,627, an average of $97.83 per ton.

In recent years mining activity in the Garfield district has been confined to small leasing operations.

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Eldorado Mining Co.

The Eldorado Mining Co. (Garfield mine), organized in 1928, is controlled by W. J. Harris of Reno and J. H. Miller of Hawthorne, Nev. The property comprises 13 claims, some of which are patented.

Entry to the Garfield Mine is by a tunnel 2,500 feet long. Total workings comprise about 2 miles. The deepest working is 350 feet from the surface. Most of the equipment has been removed, and mining is done by hand methods.

In recent years the only mining at this property has been done by lessees. Leases are given for 6-month periods. Royalty payments, based on net smelter returns are as follows:

Value of ore	Royalty, percent
$50 or less	10
$50 to $75	15
$75 to $100	20
$100 or more	25

In 1936, eight claims of the Garfield group were under lease to F. P. Merry and associates. The lessees were screening the dumps and hauling the fines to the W. & M. mill at Sodaville for treatment. The fines are said to average better than $8 per ton. The cost of screening is 64 cents per ton, and the cost of hauling to Sodaville, 22 miles distant, is $2.25 per ton. It is said that about 100,000 tons of dump material contain commercial values. Up to October 1936 about 10,000 tons of dump ore had been treated.

The W. & M. mill at Sodaville, operated by F. P. Merry and associates has a capacity of 40 tons per day. Electric power may be purchased for milling. Water for milling is obtained from a well near the millsite. The ore is concentrated by the flotation process. Milling cost is $1.62 per ton. Cost of shipping and smelting concentrates is 33 cents per ton of ore treated. The flow sheet of the mill is shown in figure 2.

At the Garfield mine the formation is limestone and volcanics. According to Miller, three interlacing veins have been exposed in the underground workings. These veins range in width from 3 inches to 9 feet. Values are in silver, gold, and lead.

Mabel Mine

The Mabel mine, adjoining the Garfield mine, consists of two patented and four unpatented claims.

Development consists of a vertical shaft 650 feet deep with levels at 100-foot intervals. A winze 130 feet deep has been sunk from the 600-foot

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

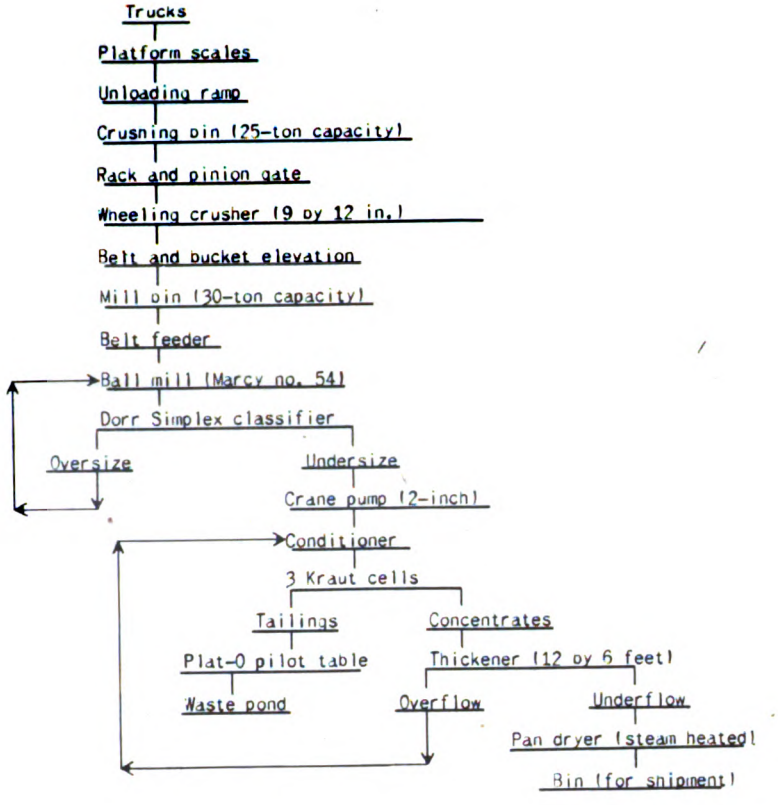

Figure 2.- Flow sheet of W. & M. mill at Sodaville, Mineral County, Nev.

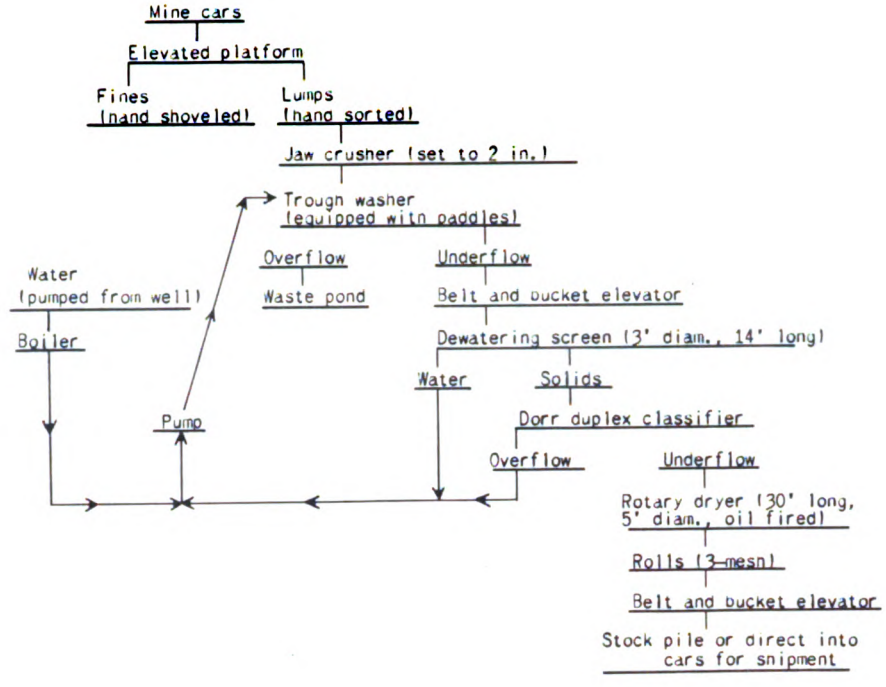

Figure 3.- Flow sheet of plant for treating thenardite, Rhodes Alkali Chemical Corporation, Rhodes Marsh, Mineral County, Nev.

Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Mining equipment includes a Chicago Pneumatic two-drill compressor and a Fairbanks-Morse gear hoist, both powered by gasoline engines. Hoisting is done with bucket and crosshead.

In 1936 that portion of the mine above the 600-foot level was under lease to Lloyd Wilson, of Hawthorne, and associates. The lessees had produced about $18,000 of shipping ore in about one year. The royalty payments based on the gross value of the ore are 20 percent on ore having a value of less than $100 per ton and 25 percent over $100 per ton. The haul to Mina, a distance of 23 miles, costs $2.75 per ton on contract.

Veins range in width from 3 inches to 3 feet and contain silver, gold, and lead.

HAWTHORNE DISTRICT

The Hawthorne district includes a large area tributary to the town of Hawthorne, which is at the south end of Walker Lane 7 miles southwest of Thorne, a station on the Mina-Hazen branch of the Southern Pacific R.R. It is sometimes divided into the Lucky Boy section and the Pamlico section, 6 and 10 miles, respectively, southeast of Hawthorne.

The Pamlico and La Panta mines in the Pamlico Range were the most important early-day producers. Other early-day mines of less importance in the Pamlico section were the Good Hope, War Eagle, New York Central, and Gold Bug. In later years, the Lucky Boy has been the principal property in the Hawthorne area. In recent years there has been little mining activity.

Production of the Hawthorne District from 1910 to 1934 is shown in table 4.

Lucky Boy Consolidated Mines Co.

The Lucky Boy Consolidated Mines Co., J. H. Miller, of Hawthorne, president and principal owner, owns 14 patented claims on the east slope of the Wassuk Range. The Lucky Boy mine was discovered in 1906 by Guy E. Pritchard while working on the road over the Lucky Boy Pass.

In 1936 the property was under option to eastern interests, and several men were employed in cleaning out the Miller tunnel. This work was done primarily to hold the option.

The Lucky Boy mine is developed by the Hubbard two-compartment shaft 350 feet deep, inclined 70°, the Miller tunnel 6,400 feet long, and approximately 2 miles of subsidiary workings.

Mining equipment includes a Sullivan compressor, 50-horsepower electric hoist, electric haulage locomotive, and other mining machinery.

A 125-ton flotation mill was erected in 1926 near the portal of the Miller tunnel. Milling equipment includes a 10- by 12-inch Blake crusher, 2 1/2- by 8-foot Hardinge ball mill, Dorr Duplex classifier, three K & K flotation units, a Deister table, and an Oliver filter.

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

I. C. 6941

TABLE 4. - Gold, silver, copper, and lead production from Hawthorne District, Mineral County, Nev., 1904-35, in terms of recovered metals

(Compiled by Charles White Merrill, Mineral Production and Economics Division, U. S. Bureau of Mines)

Year	Placer						Lode					
	No. of mines	Gold		Silver		Total value	No. of mines	Ore, short tons	Gold		Silver	
		Fine oz.	Value	Fine oz.	Value				Fine oz.	Value	Fine oz.	Value
1904	--	--	--	--	--	--	1	1,900	142.99	$2,956	35	$20
1905	--	--	--	--	--	--	--	--	--	--	--	--
1906	--	--	--	--	--	--	--	--	--	--	--	--
1907	--	--	--	--	--	--	2	35	25.54	528	9	6
1908	1	47.99	$992	7	$4	$996	1	64	45.96	950	8	4
1909	--	--	--	--	--	--	4	1,815	481.62	9,956	408	212
1910	--	--	--	--	--	--	15	4,090	864.05	17,861	421,384	227,547
1911	--	--	--	--	--	--	9	1,323	152.68	3,156	100,859	53,455
1912	--	--	--	--	--	--	15	1,358	177.86	3,677	120,854	74,325
1913	--	--	--	--	--	--	9	452	115.87	2,395	1,132	684
1914	--	--	--	--	--	--	8	305	219.95	4,547	1,098	607
1915	2	70.13	1,450	15	8	1,458	9	405	238.83	4,937	13,211	6,698
1916	2	23.31	482	4	3	485	8	377	27.09	560	56,439	37,137
1917	2	3.50	72	2	1	73	15	535	66.54	1,376	17,445	14,375
1918	--	--	--	--	--	--	8	105	41.28	853	10,019	10,019
1919	--	--	--	--	--	--	8	59	11.50	238	3,211	3,596
1920	--	--	--	--	--	--	2	256	43.00	889	15	16
1921	--	--	--	--	--	--	2	22	23.29	481	9	9
1922	--	--	--	--	--	--	6	102	31.14	644	11,110	11,110
1923	--	--	--	--	--	--	8	99	250.63	5,181	2,237	1,834
1924	--	--	--	--	--	--	4	46	151.82	3,138	200	134
1925	--	--	--	--	--	--	3	31	68.89	1,424	3,311	2,298
1926	--	--	--	--	--	--	4	18,549	27.10	560	103,473	64,567
1927	--	--	--	--	--	--	3	219	17.30	358	17,424	9,879
1928	--	--	--	--	--	--	4	210	9.32	192	11,854	6,935
1929	--	--	--	--	--	--	5	104	36.48	754	471	251
1930	--	--	--	--	--	--	(2)	(2)	(2)	(2)	(2)	(2)
1931	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
1932	--	--	--	--	--	--	3	52	84.40	1,745	1,538	434
1933	--	--	--	--	--	--	5	84	176.98	4,524	148	52
1934	(2)	(2)	(2)	(2)	(2)	(2)	8	319	460.70	16,101	256	165
											11,597	8,271

Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Generated on 2024-09-18 02:42 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

(Compiled by [illegible])

Year	Lode (Continued)						Total value, lode and placer
	Copper		Lead		Total value	Average recoverable value of ore per ton 1/	
	Pounds	Value	Pounds	Value			
1904	--	--	--	--	$2,976	$1.57	$2,976
1905	--	--	--	--	--	--	--
1906	--	--	--	--	--	--	--
1907	--	--	--	--	534	15.26	534
1908	--	--	--	--	954	14.91	1,950
1909	--	--	--	--	10,168	5.60	10,168
1910	42,966	$5,457	671,860	$29,562	280,427	68.56	280,427
1911	1,709	214	126,787	5,704	62,529	47.26	62,529
1912	52,317	8,632	185,284	8,338	94,972	69.94	94,972
1913	38,131	5,910	--	--	8,989	19.89	8,989
1914	5	1	6,169	241	5,396	17.69	5,396
1915	1,594	279	14,298	672	12,586	31.08	14,044
1916	18,537	4,560	70,000	4,830	47,087	124.89	47,572
1917	35,558	9,707	28,828	2,479	27,937	52.22	28,010
1918	474	117	18,592	1,320	12,309	117.23	12,309
1919	3,133	583	2,631	139	4,556	77.22	4,556
1920	--	--	--	--	905	3.54	905
1921	--	--	--	--	490	22.27	490
1922	38	5	17,681	972	12,731	124.81	12,731
1923	263	39	6,557	459	7,513	75.89	7,513
1924	1,604	210	3,330	266	3,748	81.48	3,748
1925	--	--	5,750	500	4,222	136.19	4,222
1926	7,958	1,114	142,195	11,375	77,616	4.18	77,616
1927	1,212	159	21,978	1,385	11,781	53.79	11,781
1928	802	115	18,106	1,050	8,292	39.49	8,292
1929	5,888	1,036	--	--	2,041	19.62	2,041
1930	(2)	(2)	(2)	(2)	(2)	(2)	(2)
1931	(2)	(2)	(2)	(2)	(2)	(2)	(2)
1932	119	7	12,086	375	2,561	49.25	2,561
1933	--	--	--	--	4,576	54.48	4,576
1934	310	25	750	28	16,319	51.16	16,319
1935	1,386	115	8,088	324	33,127	76.68	33,127
Total 2/	214,004	$38,285	1,362,550	$70,098	$757,634	$22.68	$760,982

1/ Not to be confused with average assay value of ore. 2/ Bureau not at liberty to publish figures but disclosed figures included in totals.

Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Electric power is available at the property.

Water for milling is available from Summit Springs and from the mine. Water from the springs is brought to the millsite by gravity pipeline 4 mi long and 3 to 4 inches in diameter.

According to Hill,[10] the formations at the Lucky Boy mine are granod intrusive into limestone. The ore deposit is a complex contact vein. The occurs as lenses and shoots with a steep west pitch. The main vein occurs an irregular fracture. The fracture took place after the intrusion and cu the limestone, granodiorite, and contact, although in general it follows t contact rather closely. The width of the vein varies from 1 to 8 feet and has a dip of from 70° to 80°. The ore minerals are argentiferous tetrahed galena, argentite, horn silver, and a little sphalerite and gold.

La Panta Mine

The La Panta property comprises four claims controlled by E. H. Daug of Carson City, Nev. It is 12 miles southeast of Hawthorne, and is repor to have produced about $300,000, principally in gold. In 1936 the proper was idle.

Development work includes a number of shafts, the deepest of which i feet. Total workings comprise about 5,000 feet. Some of the mine dumps been screened and shipped in former years. All equipment has been remove from the property.

The ore deposits are irregular replacement bodies in limestone near basic dike, probably basalt. The values are mainly free gold in a gangu composed principally of iron oxides. Several samples panned by the writ carried values estimated at $6 to $10 per ton.

Pamlico Mine

The Pamlico mine 10 miles southeast of Hawthorne, comprises eight c controlled by E. H. Daugherty of Carson City, Nev.

In the seventies and eighties this mine is reported to have produce hundred thousand dollars. In later years the mine has been worked inter ly by various lessees. In 1936 the property was idle.

The Pamlico vein is developed by shafts, drifts, raises, and croscu aggregating several miles in length.

Equipment includes the remains of a 20-stamp mill. All the mill e ment has been removed, with the exception of the stamps (1,050 pounds e a Gates No. 3 gyratory crusher.

In former years water for milling was piped from Cottonwood Creek, heads near Buller Mountain in the Wassuk Range, 10 miles southwest of t

10/ Hill, J. M., Some Mining Districts in Northeastern California and N Nevada: U. S. Geol. Survey Bull. 594, 1915, pp. 153-154.

Generated on 2024-09-18 02:44 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

The tailings pile below the mill is roughly estimated to contain 1,500 s. These tailings have been sampled but their average value could not be rned.

The Pamlico vein is said to be in rhyolite. The ore consists of iron-ined quartz that carries free gold as nuggets and wires and some argentiferous ena.

Placer Gold

Placer gold has been found in the Canyon below the Pamlico mine. About 00 in placer gold is said to have been mined here about 1912. The gravels deep; one shaft was sunk 170 feet before bedrock was encountered.

Barite

Barite occurs in a range of low hills 13 miles east of Hawthorne. Con-derable barite was shipped from this locality from 1916 to 1919 to consumers the Pacific coast. Most of the production was made from the Crystal claim, ened in 1926, by the D. V. O. Products, Inc. The nearest shipping point Minkaid Siding, 1.3 miles from the property.

Development work on the Crystal claims includes three shallow shafts and eral hundred feet of lateral workings. In 1936, the property was idle and mining equipment except a small geared gasoline hoist and 1-ton skip had en removed.

The barite is in a nearly vertical vein. On the surface the vein is osed by trenches and open-cuts for a length of about 800 feet. The width the barite varies from 1/2 to 8 feet. At the northerly end of the vein e barite is associated with copper minerals.

KING DISTRICT

The King mining district is in northeast Mineral County 14 miles east Rawhide and west of Mount Anna, a prominent landmark. It is accessible automobile either from Fallon 50 miles to the northwest or from Hawthorne a Ryan Canyon about the same distance to the south. This district was pros-ed to some extent many years ago and abandoned until 1926, when a small nger of rich gold ore was found at a depth of about 10 feet in an old aft. This strike attracted attention, and in 1926 and 1927 up to 100 men spected in the area. The only production was one carload of shipping ore orted to average about $40 per ton in gold.

Donnelly Group

The principal property is the Donnelly group of nine claims and two sections of unpatented ground owned by B. H. Donnelly and R. L. Mundell Hawthorne, Nev. Total development work on this ground is about 800 et and consists of a crosscut tunnel 550 feet long, a shaft 100 feet ep, and several shallower shafts and a number of open-cuts along the

Generated on 2024-09-18 02:42 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

course of the mineralization. Most of this work was done by lessees in searching for shipping ore.

The formations are principally andesite and rhyolite intruded into granite. The mineralization appears to be associated with a dike 40 to 50 feet wide. The mineralized zone is roughly 4,000 feet long and 60 to 200 f wide, traversed with numerous seams and small fissures filled with quartz carrying gold, silver, lead, pyrite, and a little copper. The individual seams are too small and irregular to be mined separately, but thorough sampling may show that the seams are numerous and rich enough to carry the intervening rock making a low-grade ore.

Sporadic sampling in places by Mr. Donnelly showed values varying fro $1.60 to $16 per ton. In addition, numerous panningsindicated a wide dis bution of values. More thorough sampling is necessary to determine the va of the deposit. Probably the only hope for the district is the possibilit of developing a large tonnage of milling grade ore.

MARIETTA DISTRICT

The Marietta, also known as the Black Mountain district, is in the vicinity of the old camp of Marietta 25 miles by automobile road southwest of Mina and 10 miles west of Belleville, the latter a station on the narro gage railroad that runs between Mina and Keeler, Calif.

The Endowment mine was discovered in this area in the early sixties, shortly after the discovery of Aurora. In recent years the principal prope ty has been the Moho mine.

Moho Mine

The Moho mine, on the south slope of the Excelsior Mountains, is acce sible by automobile road from Mina 15 miles distant. The mine was locate in 1903, and considerable work was done in searching for shipping ore. Property is credited with a production of $75,000, made mostly by lessees.

With the increase in the price for gold, interest in the property was renewed. It was sampled by Earl Bohannon; and a small company, called the Federal Mining and Engineering Co., acquired 12 unpatented claims. In 19 a pilot milling plant employing cyanidation was erected. This plant has a capacity of 25 tons per day, and up to October 1936 about 1,500 tons of du ore had been milled.

The mill equipment includes a Dorr classifier in closed circuit with home-made rod mill 5 feet long and 28 inches in diameter, 2 Parral agitato a clarifier, and 2 solution tanks. Power for milling is furnished by a 6 horsepower Holt gasoline engine.

Dump material is fine, so that primary crushing is not necessary. Or is ground to minus 60-mesh in a 2-pound-strength cyanide solution. Lime

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

sumption is 7 pounds and cyanide consumption 1/2 pound per ton. Precipitation is effected with zinc shavings. The recovery by cyanidation is reported to be 90 percent on ore averaging about $8 per ton.

Water for milling is pumped from Marietta Springs through a 2-inch-meter pipe line 4,500 feet long. Approximately 25 gallons of water per minute are pumped by Gould Triplex pump, size 3 1/2 by 5 inches, driven by Fairbanks-Morse Z-type, 10-horsepower, gasoline engine. Water is under head of feet.

Mine development consists of one tunnel driven 1,200 feet on a vein, three shorter tunnels, and several shafts, the deepest of which is 300 feet. Total underground workings comprise 3,500 feet.

The formation is mainly andesite. The ore occurs in a series of veins that average 3 1/2 to 4 feet in width and dip about 70°. One vein is traceable on the surface for a distance of 1 mile. The values are chiefly in gold, with some silver. Lead in the form of cerussite is present in the ore in amounts averaging about 2 percent.

Before the property was purchased it was sampled by 900 cut samples and, according to Bohannon, at least 100,000 tons of ore averaging $9 per ton in gold and silver have been blocked out. During the last 2 years several sets of lessors working on the property produced $12,000 in shipping ore. Mining was done by hand. The royalty payments are 15 percent of the net smelter returns on ore having a value of $30 per ton or less and 20 percent above $30 per ton.

The smelter returns on a shipment of ore made by W. J. Forbes on March 1, 1935, to American Smelting & Refining Co., furnished the following data:

Metal quotations:	Au	$34.9125 per oz.	
	Ag	.64 1/8 per oz.	
Settlement assay:	Au	1.015 oz.	
	Ag	6.3 oz.	
	Pb	1.4 percent	
Value	Au at $31.81825 per oz.		$32.30
	Ag less 0.5 oz. at $0.64125		3.72
	Total		36.02 per ton

Treatment charge:	Base charge	$3.50
	10% excess over $20	1.60
		5.10
	Labor increase	.06
		5.16 per ton

Generated on 2024-09-18 02:46 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

	Pounds		
Wet weight	119,164		
Less 10.48% moisture	12,488		
Net weight	106,676	53.338 tons at $30.86	$1,
Freight advanced at	$4.30 per ton	$245.87	
Demurrage	.....	6.00	
Fed. Min. & Engr. Co., 15 percent	.....	207.57	
	Net proceeds		1,

The trucking cost to railroad is $1.50 per ton; distance of haul, 13 miles.

Endowment Mine

The Endowment mine is 3 miles northerly from the old camp of Marietta. This property comprises five unpatented claims owned by B. F. Baker and A. Reeves of Mina, Nev.

Property was idle from 1884 until 1923, when it was worked by lessees. In 1926 lessees shipped 144 tons of ore averaging 81.6 ounces in silver, $\frac{3}{4}$ in gold, 3.83 percent copper, 5.25 percent lead, and 7.6 percent zinc.

Production from this mine, according to statements of men familiar wit the property, has been approximately $150,000, although some estimates in earlier reports give a figure as high as $1,500,000 prior to 1884.

In recent years the property has been idle.

Development consists of a tunnel reported to be 500 feet long, a winze 333 feet deep sunk from the tunnel level, and several other winzes.

Two veins occur in quartzite and quartzite conglomerate with interbedded argillite. The width of the veins ranges from several inches to 6 feet. The principal values are in silver associated with cerussite, smithsonite and copper carbonates near the surface, while at depth galena, sphalerite, pyrite, and a little chalcopyrite are associated with silver.

The following account of the mine taken from an early report by Whitehill[11] is of interest.

> The vein matter is decomposed and carries carbonate of lead, argentiferous galena, and iron. By mill process the ore yields from $50 to $125 in silver. A tunnel has been run in on the vein a distance of 500 feet and connects with a shaft at a depth of 200 feet. From this tunnel level two winzes have been sunk 200 feet, a distance of 300 feet apart. The pay ore is about 5 feet in width,

11/ Whitehill, H. R., Biennial Report of the State Mineralogist of the Stat Nevada for years 1877-78-79, p. 25.

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

though the vein matter is much wider. The 5-stamp quartz-mill, erected at Philadelphia by the State of Nevada for the Centennial Exhibition, was removed to this district and has run very successfully on the ores obtained here. The Endowment is an incorporated company, the stock of which is listed in the San Francisco Stock and Exchange Board. The assessments levied have been $50,000 and the yield of bullion $88,764.

Rutty Group

The Rutty group of three unpatented claims owned by Joe Rutty of Marietta on the south slope of the Excelsior Mountains about 1 1/2 miles north of camp. Rutty, an old time Cripple Creek miner, has worked his property himself since 1910 and made a living from it.

The mine workings comprise four adits driven at various elevations, which, h subsidiary workings, total about 4,000 feet. The ore is mined by hand is packed down the hill on burros for trucking to the mill.

The Rutty mill is a small affair equipped with a 12- by 8-inch jaw crush- two stamps weighing 1,050 pounds each, and an amalgamation plate 8 feet g and 3 feet wide. The stamps and crusher are driven by an old automobile ine. Water for milling is pumped by a 3-horsepower Fairbanks-Morse Z-type ine from a well 23 feet deep near the mill site.

The ore bodies are small and bunchy and occur along cross fractures in estone. Values are mainly in gold. According to Rutty considerable ore t will average $6 per ton at current metal prices is developed on his perty. This ore is too low grade to be mined under existing conditions.

Gold Gulch Mining & Milling Co.

The Gold Gulch Mining & Milling Co. was incorporated in 1929 as a re- anization of the London Silver Lead Mines Co. In December 1934 this perty was sold at sheriff's sale to C. E. Flagg of Reno, Nev. The proper- which has been idle for several years, comprises 14 claims several miles rtheast of Marietta and about 12 miles from Belleville.

Development work consists of a two-compartment shaft 150 feet long and e lateral workings. In 1928 a mill was erected at the Marietta. Mill ipment includes a Dodge crusher, a Denver quartz mill, and two concentrating bles powered by a Fairbanks-Morse gasoline engine.

Judging from the size of the tailings dump, the mill treated only a few ns of ore.

Annett Group

Several miles east of Marietta is a barite deposit covered by four un- ented claims owned by Al Annett of Mina. Belleville, on the Mina-Keeler row-gage railroad 11 miles east of the property, is the nearest shipping nt. No production has ever been made.

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Development consists of a tunnel 80 feet long and several open-cuts. The barite is in a series of parallel veins, each averaging about 6 feet in width.

MOUNTAIN VIEW DISTRICT

The Mountain View or Granite district is near two abandoned camps of the same name, about 1 1/2 miles apart, near the crest of the north end of the Wassuk Range 9 miles northwest of Schurz.

Gold was discovered at Mountain View by William Wilson in 1904, when the area formed part of the Walker Lake Indian reservation. In 1906, part of the reservation was thrown open to prospectors, and several claims were located at Mountain View by William Wilson. About 1908 some gold ore carrying some silver was mined and treated at a 5-stamp mill then operating at Nordyke, 15 miles from Mountain View. Later, a small stamp mill operated for a short time at Mountain View.

Small amounts of copper ore carrying a little gold and silver and some oxidized gold ore have been shipped by lessees, but in recent years there has been no activity in the area.

The formation is principally granodiorite. At the Mountain View mine the mineralization follows a narrow decomposed diorite dike that dips about vertical. The vein filling is principally quartz and iron oxide.

A vein 8 to 25 feet in width at the surface shows copper carbonate in a gangue of quartz and crushed granodiorite. A tunnel several hundred feet long was driven to prospect this deposit at depth, but no commercial ore was found.

MOUNTAIN GRANT DISTRICT

The Mountain Grant, also known as the East Walker district, covers the portion of the Wassuk Range that lies between Cory Canyon on the south and Cottonwood Canyon on the north. A considerable portion of this area has been withdrawn from the public land in order to establish the Naval Ammunition Depot at Hawthorne.

The area in the vicinity of Mountain Grant is accessible by automobile road via either Cottonwood or Cory Canyon. This road was constructed in 1934 and 1935 by the Civil Conservation Corp under the supervision of the Forest Service and the Naval Ammunition Depot at Hawthorne.

The principal property in the district in the early days was the Big Indian mine. In recent years the only mining activity has been small-scale operations by owners or lessees. For the past 3 years the principal property has been a small-scale placer operation in Laphan Meadows.

Grant Mountain Gold Mine

The Grant Mountain Gold Mine is owned by C. B. Murray, of Reno, and associates. This company owns 13 unpatented placer claims at Laphan Meadows

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

veral miles southwest of Mountain Grant and 24 miles by road west of
wthorne, Nev.

Placer operations were begun in Laphan Meadows in 1906, when this area,
rmerly part of the Schurz Indian reservation, was thrown open to prospectors.
all-scale placer operations have been carried on intermittently for many
ars, but no figures are available on the total production of placer gold.

Placer operations have been carried on by the Grant Mountain Gold Mine
. during the summer months for the past 3 years with a crew of four men.
e placer season lasts about 6 months of the year.

Production for the first two seasons amounted to $8,000.

Placer equipment comprises a 3/4-cubic yard P. & H. dragline mounted
caterpillars, and a portable sluice. The sluice is mounted on skids so
at it can be moved with the dragline equipment. The hopper of the sluice
s 15 feet above the ground. An inclined rail grizzly, 6 by 8 feet in area,
ith 4-inch openings, is above the hopper. The grizzly oversize is dis-
arged by gravity at the side of the machine. The grizzly undersize drops
nto a bin, and from the bin the gravel is fed to a sluice 50 feet long, 16
nches wide, and 10 inches deep, sloping 1-inch per foot and equipped with
ngarian riffles.

Water for sluicing is obtained from a number of small springs in the
icinity. About 1 miner's inch of water is available during the summer
onths. The water is reclaimed from two settling ponds below the sluice.
ater from the settling ponds is returned to the head of the sluice with a
-inch Byron Jackson centrifugal pump belt driven by a 6-cylinder automobile
ngine.

In mining, about 2 yards of overburden are stripped for each yard of
aterial put through the sluice. The operating costs are about 25 cents per
ubic yard of gravel treated.

The gold occurs in a channel that averages about 40 feet in width and
feet in depth. The bedrock is decomposed granite, and the best values
ccur on and in granite. The alluvium is mainly a black loam with no large
oulders. The average value of the ground is reported to be 55 cents per
ubic yard, including 6 feet of barren black loam.

The gold is fairly coarse and shows abrasion. The fineness averages
38. The largest nugget found in 1935 had a value of $30. A considerable
mount of black sand is present in the sluice concentrates. The gold
robably is derived from a series of gash veins in granite.

Big Indian Mine

The Big Indian mine is on the north fork of Cory Canyon 29 miles from
awthorne via Cottonwood Canyon. The property comprises 14 unpatented claims
wned by Mrs. Julia Ward of Reno, Nev.

5267

Generated on 2024-09-18 02:47 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

In the early days a six-stamp mill was erected in Cory Canyon to treat ore from this mine. Production is said to have been about $100,000.

Property is developed by several tunnels and a number of shallow shafts In 1936 the property was idle. There is no equipment on it.

The ore is in a series of fissure veins in granodiorite. Values are chiefly in gold in a quartz gangue.

Cory Mine

The Cory mine is on the south fork of Cory Canyon. Sam Kelso of Hawth owns the Cory group of six unpatented claims. In the seventies a small mil was operated at the mouth of Cory Canyon on ore from this mine.

Development work consists of several tunnels and shallow shafts that total approximately 3,000 feet.

Ore occurs in fissure vein in granodiorite. Values are chiefly in silver.

Talisman Group

The Talisman group of 13 claims owned by Ward Daves and Michael Knopf of Hawthorne is in Cottonwood Canyon.

Development work consists of a number of short tunnels.

Ore is in fissure veins in granodiorite. Gold is the principal metal.

One of the claims of the Talisman group contains pumice. The pumicite bed is exposed by a shallow open cut 10 feet long. The pumicite dips about 30° and averages about 3 1/2 feet thick.

Return Group

The Return group of two unpatented claims owned by J. W. Mallory of Ha thorne is on the west slope of Mountain Grant. The only production from th property has been about $200 in shipping ore.

Development work consists of a tunnel 175 feet long.

Ore occurs in a fissure vein in granodiorite. The vein has been distu considerably by faulting. Gold occurs in a gangue of quartz.

Molybdenite

According to D. H. Donnelly of Hawthorne, molybdenite is present in gr in Cory Canyon. In former years the deposit was prospected by several oper

Molybdenite occurs on ground included in the Naval Ammunition Depot a Hawthorne.

Generated on 2024-09-18 02:42 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

MOUNT MONTGOMERY DISTRICT

Mount Montgomery District is in southwestern Mineral County at the th end of the White Mountain Range. In this area gold, silver, quick- ver, and fluorspar ores have been taken from a number of small mines. n the district was visited in October 1936 there was very little mining ivity.

Mount Montgomery Quicksilver Co.

The Mount Montgomery Quicksilver Co. comprises four unpatented claims ed by W. H. Kirkbride, 1067 Fifth Ave., New York City. This property is the White Mountains 5 1/2 miles south of Mount Montgomery station. Cinna- was discovered here by John C. Morris in 1916. The claims were sold to C. Beedle, of Reno, Nev., who produced $16,000 in quicksilver during the period. In 1936 the property was worked under lease for 4 months by ter L. Lowe. Lowe produced only 1 flask of quicksilver.

Development includes two tunnels, respectively 300 and 400 feet long and other kings totaling about 1,500 feet. Mining has been done by hand methods. D-type retorts are on the ground.

Cinnabar is present in bunches in opalized rhyolite, which is considerably ttered.

Tip Top Mine

The Tip Top mine is about 10 miles south of Mount Montgomery station, ch is on the narrow-gage railroad between Mina, Nev., and Keeler, Calif. is mine was worked from 1913 to 1915 by the Atkins-Kroll Co. of San Fran- sco, which equipped the property with a 10-stamp cyanide mill of 50-ton pacity. About $100,000 in gold and silver is reported to have been pro- ced.

Development comprises several tunnels and other workings that total out 1,000 feet.

The formations are said to be andesite and rhyolite. Two veins have been nd on the property.

Golden Gate Mining Co.

The Golden Gate Mining Co. owns seven unpatented claims 4 miles east of eens and about the same distance west of Mount Montgomery station. The incipal owner is A. A. Isaacson. The property was located in 1915 by Al evens, of Bishop, and associates. In 1924 and 1925 some high-grade ore s mined and treated in a small mill at Queens. In 1936, two men were rrying on development work. Production, principally of gold, is said to e been about $50,000.

Development consists of several tunnels, one about 1,000 feet long and her workings totaling about 3,500 feet.

Generated on 2024-09-18 02:49 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Mining equipment includes a Curtis 1-drill compressor driven by a 4-cylinder Climax gasoline engine, rock drills, and a blacksmith shop.

The formations are principally limestone and granite. Gold-silver ore is present in a vein ranging in width from 2 to 7 feet and dipping about 60°. The vein is considerably faulted.

Other Properties

The Shang mine 4 miles west of Mount Montgomery station comprises six claims owned by Al Stevens of Bishop, who located the property about 1924. Development consists of several shallow shafts and tunnels, totaling in all about 1,000 feet. Formation is limestone and porphyry and values are in go and silver. Small amounts of shipping ore have been produced.

The Silver Trail group, adjoining the Shang property on the south, is owned by Al Stevens, of Bishop, and associates. Development consists of about 1,000 feet of shallow shafts and tunnels. Formation is limestone and andesite. Values are in silver, lead, and a small amount of gold. At leas 7 carloads of ore have been shipped.

The McElroy mine is near the Tip Top mine. This property is said to have been acquired recently by Dr. D. E. Mitchell and associates.

Mogoe Claims

In 1929 cinnabar was discovered by Joseph Mogoe 8 miles northwest of Basalt. Mogoe owns eight claims in this area. Four flasks of quicksilver were produced in 1930 and 1931.

Development consists of several shallow shafts, a tunnel 85 feet in length, and a number of open-cuts, totaling about 400 feet. Mining has been done by hand, and equipment includes a D-type retort.

Cinnabar is present in quartzite and limestone.

Bentonite

One mile west of Mount Montgomery station a clay deposit of bentonite type is covered by one unpatented claim owned by Robert D. Somerville, of Basalt. The highway between Coaldale, Nev., and Benton, Calif., passes ov the deposit, and the Mina-Keeler narrow-gage railroad is within 1/2 mile. The only development is a tunnel 40 feet long. No production has been mad

The bentonite is traceable on the surface for about 1,000 feet. The width is approximately 100 feet. No physical tests have been made on the bentonite to determine its value for specific purposes.

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Fluorspar

In 1914 George F. Thompson, of Mina, and Paul Kienapfiel (deceased) scovered fluorspar 3 miles south of Mount Montgomery station. Five car-ads were shipped from here in 1926. The deposit has been explored by veral tunnels totaling 1,000 feet. Fluorite associated with considerable artz is present in an andesite formation in veins from 1 inch to several et in width. Four claims have been relocated recently on the deposit by bert D. Somerville of Basalt.

ONEOTA DISTRICT

The Oneota district, also known as the Buena Vista district, is in een Canyon at the north end of the White Mountain Range 5 miles southeast Queens, a station on the narrow-gage railroad that operates between Mina, v., and Keeler, Calif. Although part of the district is in Mineral County, e major part is in Esmeralda County, Nev.

The district was organized as early as 1862 by prospectors in search gold in the White Mountains, but it was abandoned shortly after. In y 1870, some very rich float was found by an Indian, who showed it to lliam Wetherell. Wetherell returned with the Indian to the place where e float was discovered and located the Indian Queen mine, which became small but prominent early-day producer. The ore was very rich, and in e early days some of it was hauled to Sacramento, Calif., by ox teams, distance of several hundred miles. In 1882 a small stamp mill and White rnace were erected at the mouth of Queen Canyon to treat the ores from e Indian Queen mine. The ores were very base and required roasting.

The Poorman mine was discovered in this area in 1888, and in 1892 an ex suit was started between the Indian Queen and the Poorman Cos., which gged on for 4 years. The animosity engendered by this suit reached such point that actual battles took place. In 1896 the Indian Queen Co. won e suit and continued to operate until 1904. The district was idle until 35, when the Ora Tahoma Mining Co., consisting of a group from the State Washington, consolidated the principal holdings in the area, comprising claims, two of which are patented. In 1936, the Ora Tahoma Mining Co. as driving several exploratory crosscuts in virgin ground. Six men were ployed.

Complete statistics of production from the Oneota district are not vailable. Total production of the property has been in the neighborhood of 1,000,000. According to Whitehill[12]

> The Indian Queen Mine for the last three quarters of 1875 produced 896 1/2 tons of ore having a value of $132,682.96, an average of $148 per ton; and for the first half of 1876, 231 tons valued at $36,346.32, an average of $157.35 per ton.

12/ Whitehill, H. R., Biennial Report of the State Mineralogist: State of Nevada, 1875-76, p. 37.

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

The old mines were worked through tunnels. The Poorman tunnel is reported to have a length of 227 feet. The old workings were inaccessible at the time of writer's visit because they had caved.

The following extracts regarding the Indian Queen mine from early reports of the State Mineralogist are of interest.

> The vein matter is covered with a few feet only of loose earth and has a slate formation underneath. It has been opened up sufficiently to show a body of ore 400 feet in length, by 200 feet in width. It varies in thickness from a streak of colored ore to 4 feet. The ore contains a large proportion of galena, copper, and iron, with a compound of sulphide of silver and antimony. 25 tons of selected ore from this mine yielded $530 per ton.13/
>
> The loose body of ore found here upon the surface, has been traced up to and into a well-defined vein, which has been opened to a depth of 60 feet, showing a vein 2 feet in thickness, which works, without sorting, from $200 to $400 per ton. The ore is very base, containing silver in almost every combination known to science, and can only be worked profitably by persons skilled and experienced in working base ores. The vein is found between granite and slate formations, and pitches to the east at an angle of 40°. The course of the vein is north and south.
>
> Three tons of ore are worked daily, which yield a profit of $1,000. For a small mine, this is undoubtedly the most productive in the State.14/

Several mine dumps reported to contain a total of 150,000 tons were sampled by the Ora Tahoma Mining Co. and are said to average $3.26 per to in gold and silver at current metal prices. A picked 10-pound sample of material taken by the writer assayed 29.2 ounces of silver and 0.07 ounce gold. The sample showed quartz, galena, pyrite, and sphalerite. The tai ings from the old mill at the mouth of the canyon have been scattered by cloudbursts.

PILOT MOUNTAINS DISTRICT

The Pilot Mountains or Sodaville district includes the southern part of the Pilot Mountains in southeast Mineral County. Mina, a town on the Southern Pacific R.R., is the supply center and nearest shipping point.

In 1913 cinnabar was discovered in the vicinity of Cinnabar Mountain by Thomas Pepper and Charles Keough while they were searching for stray s This discovery caused considerable excitement, and shortly afterward many

13/ Whitehill, H. R., Biennial Report of the State Mineralogist: State o Nevada, 1871-72, p. 38.

14/ Whitehill, H. R., Biennial Report of the State Mineralogist: State o Nevada, 1873-74, p. 19.

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

.aims were staked by men from Mina and Tonopah. The quicksilver deposits ·e in an area about 7 miles square on the northwest and southwest slopes of .nnabar Mountain.

Quicksilver produced from various properties has amounted to more than :00,000, mostly from high-grade ore produced during the period from 1915 to :17. Most of the production has been derived from properties of the Mina ·rcury Co. and the Drew mine.

Cinnabar occurs in limestone, conglomerate, and silicified tuff. The :ology of the deposits has been described by Foshag.15/

In 1916 tungsten deposits were discovered on the east slope of Pilot :untains 23 miles by automobile road from Mina, Nev. For several years 'ter the discovery the mine was developed in a desultory manner, but a :ry small amount of tungsten concentrates were produced. The tungsten-·aring mineral is scheelite.

In addition to tungsten and quicksilver deposits, there are several de-)sits of gold and silver that have been intermittently productive for a :mber of years. In recent years metal mining in the area has been confined) small-scale operations.

A brief description of the geology of the tungsten deposits is given by ·ss and Larsen.16/

Mina Mercury Co.

The Mina Mercury Co., W. W. Booth, president, controls seven claims :d three fractions of unpatented ground in Cinnabar Canyon. This property :cludes a part of the Lost Steers group, the original discovery claims lo-·ted by Pepper and Keough. Property was last worked in 1929-30 under lease :d option by the Nevada Almaden Quicksilver Co.

In 1929, this company replaced the four D-retorts with a Cottrell oil-·red rotary furnace 30 feet long and 3 feet in diameter. Accessory re-·ction equipment includes a crusher, cyclone dust collector, metal-pipe)ndensing system, and redwood settling tanks. Power is furnished by 25-)rsepower Fairbanks-Morse semi-Diesel engine.

Development includes a shallow inclined shaft and, to judge from the ·mp, a considerable amount of underground workings.

According to Foshag17/, the country rock is limestone, with which are ·terbedded thin layers of conglomerate, sandstone, and shale. The ore

---

5/ Foshag, W. F., Quicksilver Deposits of the Pilot Mountains, Mineral County, Nev.: U. S. Geol. Survey Bull. 795, Oct. 27, 1929, pp. 113-123 (map).

6/ Hess, Frank L., and Larsen, Esper S., Contact-Metamorphic Tungsten Deposits of the United States: U. S. Geol. Survey Bull. 725-D, 1921, pp. 278-280.

7/ Foshag, W. F., Work cited (footnote 15).

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

deposits are lenticular bodies in limestone. The richest ore is confined to a brecciated zone from 4 to 6 feet wide, which has a definite hanging wall b sometimes obscure footwall. Cinnabar is almost the only sulphide present, although some small patches of stibnite and a few grains of pyrite are foun The cinnabar forms seams and bunches in the soft gangue or is finely disseri nated through it. Beyond the sheared zone the cinnabar occurs as small sca tered grains or bunches in seams of white calcite that cut the dark limesto

Drew Mine

The Drew mine is at the head of Cinnabar Canyon about 14 miles easterl from Mina. Six unpatented claims and a millsite are owned by Mrs. Al Drew of Reno.

Development includes an incline shaft, said to be 300 feet deep, and considerable lateral workings. Most of the workings are caved and inacces Most of the equipment has been removed.

According to Foshag[18/], the cinnabar is present as irregular bodies i sandstone. The stopes mined are said to have been small, but the ore was rich; some of it carried as high as 18 percent quicksilver, 28 percent lea 44 ounces silver, and more than 1 ounce gold to the ton. The ore is more complex here than in any other part of the district; the cinnabar is inti- mately associated with calamine with bintheimite. Fine-grained sphalerite is also abundant. The gangue is chiefly quartz.

Other Cinnabar Claims

Bert Hitt, of Mina, and partner own two cinnabar claims in Dunlap Can 11 miles from Mina. Very little development work has been done on this pr erty and no quicksilver has ever been produced.

Adjoining the Hitt claims are two claims owned by Ed Allen of Mina. Property is developed by a 50-foot shaft and 350 feet of drifts and other workings. Production from the Allen property has been $7,000 in quicksil

The Mammoth Quicksilver Co. property in Dunlap Canyon comprises seve unpatented claims. Nobel C. Smith, of Fresno, Calif., is the president a principal owner of the company. Production is said to have been about 3 flasks.

Development consists of several tunnels and subsidiary workings tota several thousand feet.

Equipment includes one D-retort and a three-pipe furnace, a small ai compressor, an incline gravity tram 600 feet in length, and several camp buildings.

The Cardinal group of four claims, owned by Henry Ott of Reno, is ne the Drew property in Cinnabar Canyon. This property was discovered in 1

18/ Foshag, W. F., work cited (footnote 15).

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

J. R. Towner of Sodaville. Production is said to have been 70 flasks. mine is equipped with two D-retorts.

The Red Wing group of 8 claims, owned by George A. Petty and Edward singer of Mina, is in the vicinity of Summit Springs, 23 miles from Mina.

Development work consists of several tunnels, which, with other workings, al 1,000 feet. Equipment includes two D-retorts. A small production of cksilver has been made.

The Reward group of 10 claims, owned by George Thompson of Mina and ociates, is in Dunlap Canyon. Production of quicksilver by lessees is d to have been about 1,000 flasks.

Development work comprises 300 feet of drifts, raises, and crosscuts. the exception of about 40 feet of tunnel, all the work has been in ore. October 1936, this property was under lease to Dave Hutchinson and Edward singer on a royalty basis of 15 percent of the production.

In October the lessees had constructed a two-pipe furnace with a acity of about 3 tons of ore per day. This furnace consisted of two inch pipes, 12 feet long, placed vertically in a brick-firing chamber. furnace was fired with fuel oil.

The cinnabar is present in seams and disseminated in conglomerate, estone, and sandstone.

The Chong Wong property is 1 1/2 miles northeast of the Drew mine. It prises three claims owned by Chong Wong of San Francisco, Calif. Here cinnabar is associated with barite in a chert formation.

In addition to the foregoing properties, other cinnabar claims are held this area. The possibilities for further production of quicksilver from s area are promising.

Gunmetal Group

The Gunmetal group of claims, also known as the Summerfield property, on the east slope of the Pilot Mountains 23 miles southeast of Mina. The cipal owner is E. W. Esson of Los Angeles. About 1924, this property was ed under bond and lease by the Lezeart Coal Mine Syndicate. This company cted a 25-ton mill that employed pneumatic concentration. In 1927, opera- ns were discontinued. The attempt to recover the scheelite by dry concentra- n was unsuccessful. The Lezeart mill was equipped with a small crusher, an e ball mill, and two Stebbins dry concentrating tables. Development con- ts of a tunnel about 600 feet long and some scattered surface workings.

The scheelite occurs in a series of metamorphosed limestone (tactite) s that have been uplifted and tilted by granodiorite porphyry. The beds from 15° to 30° and range in width from 3 feet to a maximum of 75 feet. tungsten mineral is scheelite which occurs as crystals that range in size

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

from a head of a pin to 1/2 inch in diameter. The gangue minerals are garne epidote, and other silicates common to this type of contact metamorphic deposit. Sampling done has been insufficient to determine how much of the tactite beds can be classed as ore; by panning it is said most of the tactite is found to carry scheelite, and some of it will average 1 percent scheelite.

Other Tungsten Claims

The Desert Scheelite group of five unpatented claims, owned by George Thompson and M. Whitaker of Mina, adjoins the Summerfield property. In 19 this group of claims was reported to have been taken over by a San Francisc syndicate on a royalty basis. Development work consists of short tunnels and surface cuts totaling about 500 feet.

The Garnet group of six unpatented claims in the same area is owned b George Thompson and the S. M. Summerfield estate. Virtually no developmen work has been done on this group.

The Silver Tungsten King group, comprising four claims, is owned by George Zark, of Mina, and associates. Very little work has been done on this group.

Stormland Group

The Stormland group of claims is at Camp Eddyville, in the Pilot Moun about 15 miles east of Sodaville. In 1932, John Eddy and Delbert Spainhou Mina, discovered high-grade gold ore on this ground. The property was sol a group that is reported to have taken out $30,000 in high-grade gold ore chloriding. In 1936 the property was inactive.

The formation is said to be limestone cut by dikes. Free gold is associated with manganese in irregular pockets in the limestone. All the or produced has been taken from within 50 feet of the surface.

Belleville Mine

The Belleville mine comprises four unpatented claims at the head of T phone Canyon on the west side of the Pilot Mountains 8 miles east of Soda The owner is A. J. Belleville of Mina. The property was discovered in 19 Charles Woodruff. In 1932 and 1933 a small company called the Russell Gol Mining Co. operated the property and produced $27,000 in gold. In 1936, t property was under bond and lease to F. C. Marquiss and associates, and preparations were being made to erect a 25-ton mill.

Development consists of five tunnels, the longest of which is 900 fee Total development is approximately 3,000 feet. Equipment includes a two-c portable compressor and a 5-ton Straub mill for amalgamation. Two veins h been discovered on the Belleville property. Values are chiefly in free go occurring in a gangue of manganese and calcite.

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Sodaville Tailings

About 1/2 mile east of Sodaville is a tailings dump owned by Arthur on of Candelaria, which was derived from ore taken from the mines of Candelaria district in the early days. The ore was treated by chlorid roasting and amalgamation. A number of unsuccessful attempts have made to recover the values. The dump is reported to contain at least 00 tons and to average better than $3.50 per ton at current metal prices. es are in silver, gold, and quicksilver. The quicksilver in the tailings derived from losses incurred in amalgamating the ores.

Bentonite

Two miles east of Mina on the west slope of the Pilot Mountains is a onite type of clay. The deposit is covered by two unpatented claims d by the John McMillan estate. It has been prospected by several shallow ts and open-cuts. No large tonnage is indicated.

Montezuma Mine

The Montezuma mine is in the east foothills of the Pilot Mountains, 20 s by road east of Sodaville. Some years ago this property was worked by German American Turquoise Co. In recent years the property has been inve. Development consists of a number of irregular pits and short tunnels.

The turquoise is in decomposed trachyte as veinlets and nodules up to ch thick. Most of the material is said to be of too poor quality for stones.

RAND DISTRICT

The Rand or Bovard district is on the northeast slope of the Gabbs ey Range in northeast Mineral County, 27 miles by road northeast of corne via Ryan Canyon and Nugget Wash. It was discovered by Al Bovard other prospectors from Rawhide in the spring of 1908. The nearest shipping point is Nolan on the Mina Hazen branch of the Southern Pacific R. R. iles southwest of the district.

In 1919, a company called the Gold Pen Mines Co. acquired the Gold Pen erty and erected a 20-ton amalgamation mill in 1920. This company ran financial difficulties in 1921 and the property was sold to other rests.

Practically all the production has been ore shipped by lessees, except small amounts treated at Rawhide or locally. Metal production from the rict from 1910 to 1934 is shown in table 5.

Randall Property

R. J. Randall owns eight unpatented claims formerly owned by the Nevada- Mining Co. Randall acquired the property in 1927 at a sheriff's sale to isfy a judgment for $2,500 and costs obtained by the company's creditors. erty has been worked intermittently by Randall since 1927. Production is orted to have been about $50,000.

Generated on 2024-09-18 02:44 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Generated on 2024-09-18 02:48 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

TABLE 5. - Gold, silver, copper, and lead production from Rand (Bovard) District, Nevada, 1910-35, in terms of recovered metals

(Compiled by Charles White Merrill, Mineral Production and Economics Division, U. S. Bureau of Mines)

	Lode											
			Gold		Silver		Copper		Lead			
Year	No. of mines	Ore, short tons	Fine oz.	Value	Fine oz.	Value	Fine oz.	Value	Fine oz.	Value	Total value	Average recoverable value of ore per ton1/
1910	4	12	74.85	$1,547	317	$171	---	---	---	---	$1,718	$143.17
1911	---	---	---	---	---	---	---	---	---	---	---	---
1912	---	---	---	---	---	---	---	---	---	---	---	---
1913	---	---	---	---	---	---	---	---	---	---	---	---
1914	3	227	398.76	8,243	18,230	10,081	---	---	---	---	18,324	80.72
1915	7	212	1,271.25	26,279	8,674	4,398	---	---	6,588	$310	30,987	146.17
1916	9	812	566.85	11,718	4,746	3,123	100,709	$24,774	5,845	403	40,018	49.28
1917	9	2,795	105.90	2,189	2,390	1,969	374,395	102,210	9,034	777	107,145	38.33
1918	6	265	70.87	1,465	2,927	2,927	47,572	11,750	20,744	1,473	17,615	66.47
1919	4	189	353.68	7,311	3,788	4,243	12,223	2,274	---	---	13,828	73.16
1920	3	95	743.84	15,376	1,793	1,954	---	---	---	---	17,330	182.42
1921	3	34	145.55	3,009	4,755	4,755	---	---	---	---	7,764	228.35
1922	4	41	121.02	2,502	1,191	1,191	---	---	---	---	3,693	90.07
1923	2	81	239.06	4,942	9,036	7,410	---	---	---	---	12,352	152.49
1924	4	370	759.28	15,696	33,678	22,564	---	---	---	---	38,260	103.41
1925	2	234	407.17	8,417	3,692	2,562	---	---	---	---	10,979	46.92
1926	4	477	250.18	5,172	4,650	2,902	26,141	3,660	---	---	11,734	24.60
1927	5	455	355.01	7,339	5,499	3,118	11,195	1,466	10,512	663	12,586	27.66
1928	6	243	182.12	3,765	2,465	1,442	11,242	1,619	---	---	6,826	28.09
1929	3	183	48.98	1,013	166	88	19,126	3,366	719	45	4,512	24.66
1930	---	---	---	---	---	---	---	---	---	---	---	---
1931	---	---	---	---	---	---	---	---	---	---	---	---
1932	---	---	---	---	---	---	---	---	---	---	---	---
1933	1	33	32.00	818	1,096	384	---	---	---	---	1,202	36.42
1934	1	22	27.30	954	813	526	---	---	---	---	1,480	67.27
1935	5	111	103.32	3,616	1,612	1,159	---	---	---	---	4,775	43.02
Total		6,891	6,256.99	$131,371	111,518	$76,967	602,603	$151,119	53,442	$3,671	$363,128	$ 52.70

1/ Not to be confused with average assay value of ore.

Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Development comprises a 1 1/2-compartment vertical shaft 450 feet ep and approximately 1,500 feet of underground workings. Equipment in- es a gasoline hoist, blacksmith shop, and several camp buildings. ing is done by hand methods. A shipment of ore made by Randall to the ternational Smelting & Refining Co. at Salt Lake City on April 12, 1935, forded the following data:

al quotation:	Ag	$0.64125	per oz.
	Au	35.00	per oz.
tlement assay:	Au	0.75	oz.
	Ag	22.25	oz.
	Zn	.5	percent
	Cu	nil	
	Pb	nil	
	Insol.	86.4	percent
	Fe	2.5	percent
	S	.2	percent
	CaO	3.0	percent

al payment:	Au	91 percent at	$35 per oz.	$23.888
	Ag	95 percent at	$0.64125 per oz.	13.554
			Gross value	37.442
atment charge:	Base rate		$4.00 per ton	
	10% charge metal payment over $25		1.244	
			5.244	5.244
		Net value per ton		32.198

	Pounds	
weight	96,780	
s 1.54 moisture	1,490	
weight	95,290	equals 47.645 tons

47.645 tons at $32.198 per ton $1,534.07

ctions:	Freight $4.90 per ton	$237.11	
	Demurrage	2.00	
		239.11	239.11
	Net proceeds		1,294.96

Ore occurs in veins in latite. Some of the silver is alloyed with d and some occurs as cerargyrite and argentite. The rich ore occurs in ses in a quartz gangue stained with iron and manganese oxides.

The ratio of gold to silver, by weight, averages 1 to 30.

Gold Pen Mine

The Gold Pen mine comprises a large group of claims owned by Richard les of Reno. The property is developed by a shaft 250 feet deep, a tunnel,

Generated on 2024-09-18 02:46 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

and several thousand feet of workings. Equipment includes an assay office, 25-ton mill, blacksmith shop, and camp building. In 1936, a portion of the property was under lease to W. B. Worlock, who had made two small shipments up to October.

At the Gold Pen mine the vein is said to be 3 to 8 feet wide and separated from the walls by sheets of alunite from 3 inches to 1 foot wide Values are gold and silver in a quartz gangue. The enriched zone extends to a depth of 250 feet from the surface.

Lone Star Group

The Lone Star group of eight unpatented claims is owned by E. M. Mims of Sacramento, Calif., and adjoins the Randall property. Development consists of a shaft 550 feet deep and about 1,000 feet of underground working Mining is done by hand.

Geological conditions on this property are essentially the same as on the Randall group. Production has been about $25,000 in gold and silver.

RAWHIDE DISTRICT

The Rawhide or Regent district is on an irregular range of hills at the south end of the Sand Springs Range in northeast Mineral County near the border of Churchill County. Fallon in Churchill County is 50 miles northwest, and Schurz, the nearest shipping point, 29 miles east.

Mining locations were first made in the area in 1906. With the finding of some high-grade gold ore and after considerable flamboyant advertising, a rush to the district took place in 1908 that raised the temporary population to 4,000 people. On September 4, 1908, a fire destroyed a large part of the business section of Rawhide, which caused a loss of several hundred thousand dollars. No large mines have ever been developed in this area and the principal production of the camp has been derived from leasing operations. In the early years of the camp as many as 50 sets of lessees or leasing companies were at work at one time. Nearly all the ore was shipped for treatment.

In 1909, two mills of unusual type were erected in the district. One was called a Tadmor and the other a Cannonball mill. The Tadmor mill employed a heavy muller actuated by an overhead eccentric bearing, which gave a crushing movement similar to that of a gyratory crusher. The muller weighed 8,000 pounds, and crushing was effected by the action of its weight upon a die. This mill is reported to have had a capacity of 20 tons per 24 hours. Concentrating was done with Wilfley tables.

The second mill is reported to have had a capacity of 30 tons per 24 hours, from 1 inch to 80-mesh, crushing either wet or dry. The crushing device consisted of a flat iron pan with three rings at increasing distance from the axis of rotation. Each ring carried a number of chilled iron ba

Generated on 2024-09-18 02:44 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

uniform in size for each ring but diminishing in size from the inner to the outer ring. The balls were held in place under pressure by overhead rings so designed that the pressure on each ring could be changed independently of the other two. The ore was fed to the center of the machine and was discharged at the periphery. Concentrating was done by amalgamation.

Both these mills operated only a short time and are mentioned here more because of their metallurgical interest than because of their economic importance. Several other mills using stamps for crushing were erected in the district in the early days. All of the mills have been dismantled.

The largest holdings in the district are owned by the Scheeline estate, which controls 17 1/2 patented claims, and the Grutt brothers, who own 19 claims, most of which are patented.

Development work consists of a number of shafts and tunnels, the deepest shaft being 600 feet with a winze from the bottom level 120 feet deep. Judging from the mine dumps, total underground workings will comprise at least several miles.

The formations in the area are rhyolite, dacite, and andesite. The ore occurs in a network of veinlets that impregnate the country rock. The mineralization appears to follow incipient fissures, mainly in kaolinized rhyolite. In places the kaolinite material carries good values. The ore minerals are native gold alloyed with silver, argentite, and cerargyrite.

At the time of the writer's visit in June 1936, several lessees were active in the camp.

Production of the district from 1908 to 1934 is shown in table 6.

Leonard Lease

For the past 18 years W. H. Leonard of Rawhide has shipped 15 to 20 tons of ore annually, which had a value of from $50 to $1,200 per ton. In 1936 Leonard leased on the Truett property, owned by the Scheeline estate.

The royalty paid by Leonard on the net smelter returns is as follows:

Value of ore	Royalty, percent
$50 or less	10
$50 to $400	15
$400 or more	20

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

TABLE 6 - Gold, silver, copper, and lead production from Regent (Rawhide) district, Mineral County, Nev., 1908-35

(Compiled by Charles White Merrill, Mineral Production and Economics Division, U. S. Bureau of Mines)

Year	Placer						Lode			
	No. of mines	Gold		Silver		Total value	No. of mines	Ore, short tons	Gold	
		Fine oz.	Value	Fine oz.	Value				Fine oz.	Value
1908	1	4.40	$91	--	--	$91	9	1,826	6,069.86	$125,475
1909	--	--	--	--	--	--	10	6,197	7,546.59	156,002
1910	5	579.79	11,985	467	$252	12,237	22	12,582	6,538.27	135,158
1911	7	324.25	6,699	271	143	6,842	17	6,013	3,364.65	69,554
1912	2	81.90	1,693	82	50	1,743	19	1,579	1,563.50	32,320
1913	1	8.20	170	10	6	176	13	6,954	4,845.44	100,164
1914	5	201.78	4,171	148	82	4,253	24	18,279	7,523.45	155,524
1915	3	274.70	5,679	166	84	5,763	5	6,973	3,968.80	82,042
1916	1	12.62	261	7	5	266	7	4,371	2,268.56	46,895
1917	2	17.22	356	12	10	366	5	298	423.19	8,748
1918	4	47.55	983	48	48	1,031	8	285	620.14	12,820
1919	5	45.34	937	28	31	968	5	199	677.97	14,015
1920	--	--	--	--	--	--	7	284	807.65	16,696
1921	2	6.60	136	5	5	141	11	93	257.10	5,315
1922	--	--	--	--	--	--	11	237	368.02	7,607
1923	1	2.04	42	1	1	43	8	399	393.62	8,137
1924	1	8.38	173	2	1	174	9	221	178.09	3,681
1925	--	--	--	--	--	--	6	36	123.02	2,543
1926	--	--	--	--	--	--	12	120	93.92	1,941
1927	--	--	--	--	--	--	5	57	119.09	2,462
1928	--	--	--	--	--	--	4	186	272.67	5,636
1929	--	--	--	--	--	--	3	66	82.09	1,697
1930	--	--	--	--	--	--	5	40	52.90	1,094
1931	2	18.29	378	10	3	381	6	116	103.87	2,147
1932	2	32.30	668	24	6	674	9	118	288.01	5,954
1933	5	65.93	1,685	29	10	1,695	8	279	122.94	3,142
1934	2	31.77	1,110	89	57	1,167	8	139	111.88	3,910
1935	4	54.64	1,912	42	30	1,942	8	100	248.26	8,689
Totals		1,817.70	$38,129	1,441	$824	$39,953		71,047	49,033.55	$1,019,368

Continued --

Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Generated on 2024-09-18 02:44 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Lode (Continued)

Year	Silver		Copper		Lead		Total value	Average recoverable value of ore per ton[1]	Total value, lode and placer
	Fine oz.	Value	Pounds	Value	Pounds	Value			
1908	40,970	$21,714	---	---	---	---	$147,189	$80.61	$147,280
1909	89,833	46,713	---	---	---	---	202,715	32.71	202,715
1910	78,117	42,183	352	$45	216	$9	177,395	14.10	189,632
1911	44,740	23,712	---	---	---	---	93,266	15.51	100,108
1912	45,139	27,760	16,663	2,749	418	19	62,848	39.80	64,591
1913	109,817	66,329	38	6	---	---	166,499	16.73	166,675
1914	105,607	58,401	---	---	---	---	213,925	11.70	218,178
1915	78,512	39,806	---	---	---	---	121,848	17.47	127,611
1916	35,313	23,236	---	---	838	58	70,189	16.06	70,455
1917	10,397	8,567	---	---	---	---	17,315	58.10	17,681
1918	9,041	9,041	7,842	1,937	---	---	23,798	83.50	24,829
1919	12,972	14,529	---	---	---	---	28,544	143.44	29,512
1920	25,443	27,733	---	---	---	---	44,429	156.44	44,429
1921	9,528	9,528	---	---	---	---	14,843	159.60	14,984
1922	13,451	13,451	---	---	---	---	21,058	88.85	21,058
1923	9,924	8,138	---	---	---	---	16,275	40.79	16,318
1924	4,518	3,027	43	6	---	---	6,714	30.38	6,888
1925	4,324	3,001	20	3	38	4	5,551	154.19	5,551
1926	2,648	1,652	---	---	19,470	1,558	5,151	42.93	5,151
1927	686	389	689	90	1,546	97	3,038	53.30	3,038
1928	1,356	793	---	---	---	---	6,429	34.56	6,429
1929	1,168	623	---	---	---	---	2,320	35.15	2,320
1930	208	80	107	14	530	26	1,214	30.35	1,214
1931	507	147	---	---	---	---	2,294	19.78	2,675
1932	882	249	---	---	---	---	6,203	52.56	6,877
1933	472	165	---	---	---	---	3,307	11.85	5,002
1934	366	237	---	---	310	12	4,159	29.92	5,326
1935	1,425	1,024	37	3	---	---	9,716	97.16	11,658
Totals	737,364	$452,228	25,791	$4,853	23,366	$1,783	$1,478,232	$20.81	$1,518,185

1/ Not to be confused with average assay value of ore.

Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Mining is confined to working a large mass of low-grade ore that averages about $2.50 per ton in gold. According to Leonard, the gold occurs in a number of small fissures in dacite. On the surface the fissured area is 225 feet wide and 700 feet long. By screening the run of mine product through 1-inch screen, Leonard can obtain a product that averages about $100 per ton. Several men are employed, and mining is done by hand. Hoisting is done with a 25-horsepower Western gasoline hoist.

The smelter returns on a shipment of ore made by W. H. Leonard to the American Smelting & Refining Co. on October 18, 1935, gave the following returns:

Metal quotation:	Au	$34.9125		
	Ag	.77		
Settlement assay:	Au	2.425 oz.		
	Ag	7.7 oz.		
	Insol.	88 percent		
Metal payment:	Au at $31.81825			$77.16
	Ag 95% less 0.5 oz. at .77			5.27
				82.43
Treatment charge:	base	3.75		
10% excess over $20.00		2.25 (max.)		
		6.00		6.00
		Net value per ton		76.43
	Pounds			
Wet weight	45,040			
Moisture, less 4.2%	1,892			
Dry weight	43,148	21.574 tons at $76.43		$1,648.
Royalty before hauling, 15%		$214.57		
Freight at $9.30		209.44		
Emergency freight at $0.40 per ton		9.01		
Hauling at $3.50 per ton		78.82		51
Net proceeds				1,13

Placers

Placer gold has been found south and southwest of the town of Rawhi The lack of water necessitated the use of dry-washing equipment, althoug hand rockers were employed to some extent in the early days. Water for recovering gold with rockers was hauled from wells several miles southe of the camp.

The best placer diggings were on the southeast slope of Hooligan Hi Numerous shafts averaging about 15 feet in depth attest the activity in area in former days. The gravel is composed of angular rock fragments, and soil, with few large boulders. The largest nugget found is reported have had a value of $70.

Generated on 2024-09-18 02:44 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Hooligan Hill slopes toward a canyon several miles in length, and at ıe mouth of this canyon the gravels spread out in the form of an alluvial ;an, in which placer gold has been found. The gravels range in depth from) to 90 feet. About 30 shafts have been sunk on the fan, and a small amount f placer mining has been done at several of the shafts with small-scale placer ining equipment. The best values are found directly above the rhyolite bed-ock. In 1930 the Idaho Dredging Co. of Boise, Idaho, obtained a bond and ease on 1,180 acres of placer ground and began sampling. After a short time ıe property and the sampling operations were taken over by the Hammond Engi-eering Co. This company relinquished the option on the ground. In 1935 me Engel and associates, of Pasadera, Calif., relocated 15 claims, called ıe Pilot placers, in this area.

In recent years there has been a small amount of dry washing of placer ound in the vicinity of Rawhide by itinerant placer miners. The returns f this work netted the operators less than wages.

Tungsten Claims

In 1930 W. H. Leonard discovered scheelite 5 1/2 miles east of Rawhide ı the southern part of the Sand Springs Range. In 1936 the Leonard group of) unpatented claims was under bond and lease to the Mills Alloys, Ltd., of ıs Angeles, Calif. In September 1936 this company erected a small concentra-or at Dead Horse Wells 9 miles south of the deposit, where water is available. ; the time of the writer's visit this company had produced 600 pounds of con-ntrates carrying about 40 percent scheelite. The concentrates had not been leaned by magnetic separation and contained a considerable amount of garnet. lis is the only production from the property.

Development work on the claims is all superficial in character and con-lsts of approximately 300 feet of scattered open-cuts and short tunnels. ıe Mills Alloys, Ltd., employed four men, and mining was done by hand methods.

Scheelite occurs as a contact metamorphic deposit in limestone near ranite. The tactite, which is the garnetized rock that carries the cheelite, shows a considerable width in places and is traceable for several ousand feet on the surface. The scheelite is in the form of small crystals om the size of a pinhead up to half an inch in diameter. In places the ctite is stained with copper. No systematic sampling has been done, and ıe property may be considered to be in the prospect stage.

The concentrator built by the Mills Alloys, Ltd., consists of a small w crusher, two sets of small rolls, one concentrating table, and a home-de electric magnetic separator for cleaning the table concentrates. Power s furnished by a gasoline engine. None of the equipment is of standard make, d the capacity of the plant is limited to a few tons of ore per day.

Several miles north of the Leonard property several tungsten claims ıe owned by Tom Kenyon of Sunnyside, Nev. This property was not visited, t specimens of the ore seen by the writer showed scheelite as crystals

Generated on 2024-09-18 02:47 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

ranging in diameter from 1/4 up to 1 inch in a matrix of amphibole and quartz. It is reported that very little work has been done on the property

RHODES MARSH DISTRICT

Rhodes Marsh is in the lowest part of Soda Springs Valley just east o Rhodes siding on the Tonopah & Goldfield R. R. The town of Mina is 8 miles north. The altitude of the surface of the marsh is 4,400 feet above sea level.

The marsh was first exploited in the early sixties to supply salt necessary for the extraction of gold and silver from the ore of the Comsto Aurora, Candelaria, Belmont, and other districts where the Washoe pan proc was employed.

An interesting sidelight on the production of salt from Rhodes Marsh is a historical note, mentioning the importation of camels for transportin salt to Virginia City. An old ordinance in Virginia City prohibited camel from entering the city during certain hours of the day to prevent the stampeding of horses.

In the seventies, shortly after its discovery in Teel's Marsh, borax was found in Rhodes Marsh. Considerable activity prevailed and borax min was pursued for a number of years. The borax occurred mainly as ulexite nodules consisting of rounded masses of loosely compacted acicular crysta several inches in diameter, called "cottonballs" because of their resembl to balls of cotton. Because these deposits are rather purer than those o the natural borax type, they were much sought after and exploited. The ulexite nodules occurred a few inches below the surface of the lake and w gathered by Chinese and Indians, who hand-picked them out of the shallow cavations in the mud. These nodules were boiled in tanks fired with sage brush and pinon pine. After the material was in solution, the borax was crystallized out on iron rods suspended in the crystallizing vats. The crude borax was shipped to Alameda, Calif., for refining.

Rhodes Marsh was thoroughly worked for borax in the early days, and ceased to be a factor when the extensive underground deposits of calcium borate (colemanite) found in the vicinity of Death Valley, Calif., revol tionized the industry.

Some years ago the marsh was prospected for potash, but the potash content of the brines present a short distance beneath the surface is to low to be of commercial interest.

In 1928, P. S. Williams, a chemical engineer, became interested in Rhodes Marsh as a source of sodium sulphate. For many years it was know that mirabilite (Glauber's salt, $Na_2SO_4.10\ H_2O$) occurred in the marsh in large quantities, but nothing was done until Williams interested a group

19/ Amalgamation in pans heated by steam, using quicksilver, salt, and copper sulphate for reagents.

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

San Francisco men in obtaining an option on 2,120 acres owned by George Betty of Mina, Nev. The San Francisco group organized a company called e Rhodes Alkali & Chemical Corporation and spent considerable money in mpling and investigating processes for the recovery of the sodium sulphate. the first plant erected in 1930 efforts were directed toward the utilizaon of seasonal temperature changes in the production of sodium sulphate h natural brines made by passing water over or through the sodium sulphate ls. Next, an attempt was made to free the Glauber's salt from the silt h which it is associated, and then to dehydrate it by heating. Neither ocess was successful. Later it was found that considerable thenardite a2SO4) occurred in the marsh and attention was directed to the mining this product. In 1932, a plant capable of producing 150 tons of sodium phate per day was erected and was operated up to 1933.

The Rhodes Alkali & Chemical Corporation is said to have spent $150,000 sampling and in the erection of a plant. Production of sodium sulphate been about 20,000 tons.

Rhodes Marsh is 3 miles long and has an average width of 1 1/2 miles. is dry for the greater part of the year and encrusted with salts. The mulation of surface salts, mostly sodium chloride, varies in thickness h the season; during warm, dry weather the whole surface is elevated eral inches and forms a pulverent mass; this mass shrinks again in cold, weather, becoming hard and compact. It rises and falls somewhat in the ner of a great pan of dough. The water level fluctuates with the season in the summer stands 4 to 5 feet below the surface. The thenardite oc- s in lenses from 3 to 5 feet thick under an overburden of silt and salt ying from 2 to 6 feet thick. The Rhodes Alkali & Chemical Corporation sampled the marsh with several thousand augur holes drilled by hand, , according to the drill records, at least 3,000,000 tons of sodium sul- te salts are available.

In mining, the thenardite was stripped of the overburden of salt and t with a P. & H. gasoline shovel. The areas stripped are from 30 to 50 t in diameter. These pits were drained by means of gasoline pumps.

The thenardite layer was blasted and loaded into 2-yard dump cars by oline shovel equipped with trench hoe attachment. The material was led about 1 mile to the plant for treatment. A flow sheet of the atment plant is shown in figure 3.

The treatment of the crude thenardite is merely a process for the oval of sand silt. This is done in several steps to maintain a counter w of material and wash liquors and to utilize the nearly saturated solun so as to prevent losses. The following is a typical analysis of the ished product:

Generated on 2024-09-18 02:42 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

	Percent
Sodium sulphate	97.33
Sodium chloride	1.07
Calcium sulphate	.28
Insoluble	1.24
Moisture	.08
Total	100.00

Power for the treatment plant is furnished by a 120-horsepower Fairbanks-Morse Diesel engine.

Water is available from shallow wells near the plant. Two artesian we were drilled by the company at the south end of the marsh in 1930. One wel is 450 feet and the other 420 feet deep; both wells have 16-inch casing nea the surface and 10-inch casing near the bottom. In sinking the wells, thre fresh-water-bearing strata were encountered. The combined flow from the tw wells is in excess of 200 gallons per minute.

SANTA FE DISTRICT

The Santa Fe, also known as the Luning district, is in the northern p of the Pilot Mountains 4 miles east of Luning, a small town on the Mina-Ha branch of the Southern Pacific R. R. The district is separated from the G Valley Range on the north by the Santa Fe Pass, which transects the range from east to west.

According to Burchard[20], the Santa Fe mine was discovered in 1879 an was in operation in 1883. The Sunrise mine also was active at that time; little later the Wall Street mine was worked for copper. The ores from th Santa Fe and Sunrise mines are said to have carried rich silver values.

Up to 1894 mining in this area was confined mainly to the silver deposits; the copper-lead deposits, carrying some silver, have been worked intermittently, principally by lessees, from 1900 to 1929. The greatest period of activity occurred during the World War, when the high price of copper enabled lessees to work the deposits at a profit. Several small companies were organized to work properties in the district, but for the most part they were short-lived.

By selective mining and hand sorting, lessees were able to produce o containing from 5 to 12 percent copper. The copper ore produced was shi either to smelters in Salt Lake Valley, Utah, or to the Thompson smelter Wabuska, Nev. The Thompson smelter was blown in during 1912 and closed d in 1928.

In 1936 mining activity in the Santa Fe district was confined to sev gold deposits about 5 miles northeast of Luning.

20/ Burchard, H. C., Report of the Director of the Mint for 1882, p. 41.

Generated on 2024-09-18 02:42 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

The geology of the district has been described by Hill[21] and Clark[22]. roduction of the district from 1906 to 1935 is shown in table 7.

New Year Group

The New Year group comprises four unpatented claims on the west slope f Pilot Range 5 miles northeast of Luning, owned by H. A. Peterson and Joe ardwell of Mina, Nev.

These claims formerly were part of the property owned by the Luning onsolidated Silver Mines Co. of Nevada. In 1936, lessees shipped several ndred tons of ore from this property to a Salt Lake City smelter.

Development work consists of a shaft 40 feet deep, another 175 feet eep, and several tunnels, comprising in all several thousand feet of under- round workings. Mining is done by hand methods.

The gold occurs in a vein in limestone. The dip of the vein averages) degrees and the width about 5 feet. Commercial ore is present in lenses ssociated with pyrite in a quartz gangue. Near the surface the oxidation of ce sulphide has resulted in the concentration of gold in a limonitic quartz angue.

A shipment of ore made by E. S. Perry to the American Smelting & Re- ining Co. on April 3, 1936, afforded the following data:

etal quotations:	Au .... $34.9125 per oz.		
	Ag ..... .77 per oz.		
ettlement assay:	Au ..... .42 oz.		
	Ag ..... 4.6 oz.		
	Cu ..... .18 percent		
etal payment:	Au at $31.81825		$13.36
	Ag less 0.5 oz. at $0.77 .		3.16
	Gross value		16.52
	Less treatment		3.50
			13.02
	Pounds		
et weight	102,960		
ess 7.4% moisture	7,620		
Net weight	95,340 or 47.67 tons at $13.02		$620.66
eductions:	Freight 3.60 per ton...	$185.33	
	Emergency freight 7% ..	12.97	
	Hauling at $1.25 per ton	64.35	262.65
	Net proceeds		358.01

[21] Hill, J. M., Some Mining Districts in Northeastern California and Northwestern Nevada: U. S. Geol. Survey Bull. 594, 1915, pp. 157-171.
[22] Clark, C. W., Geology and Ore Deposits of the Santa Fe District, Mineral County, Nevada: Univ. of California Bull. Dept. Geol. Sci., vol. 14, no. 1, 1922, 74 pp.

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Generated on 2024-09-18 02:42 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

TABLE 7. - Gold, silver, copper, and lead production from Santa Fe district, Mineral County, Nev., 1906-35

(Compiled by Charles White Merrill, Mineral Production and Economics Division, U. S. Bureau of Mines)

	Placer						Lode					
		Gold		Silver					Gold		Silver	
Year	No. of Mines	Fine oz.	Value	Fine oz.	Value	Total Value	No. of Mines	Ore, short tons	Fine oz.	Value	Fine oz.	Value
1906	---	---	---	---	---	---	---	7,000	1,685.24	$34,837	2,857	$1,943
1907	---	---	---	---	---	---	4	9,489	2,023.53	41,830	8,056	5,317
1908	---	---	---	---	---	---	8	2,143	713.10	14,741	3,102	1,644
1909	---	---	---	---	---	---	7	409	261.42	5,404	13,088	9,926
1910	---	---	---	---	---	---	8	1,120	151.08	3,123	10,022	5,412
1911	---	---	---	---	---	---	4	158	57.63	1,191	2,902	1,538
1912	---	---	---	---	---	---	34	3,080	352.14	7,279	17,415	10,710
1913	---	---	---	---	---	---	29	9,087	76.22	1,576	14,358	8,672
1914	1	11.56	$239	2	$1	$240	19	1,426	20.51	424	4,313	2,385
1915	---	---	---	---	---	---	20	2,726	144.47	2,987	6,802	3,449
1916	---	---	---	---	---	---	19	17,665	59.09	1,222	46,755	30,765
1917	---	---	---	---	---	---	49	19,932	97.17	2,009	50,007	41,206
1918	---	---	---	---	---	---	25	12,897	46.09	953	42,012	42,012
1919	---	---	---	---	---	---	4	534	.14	3	2,008	2,249
1920	---	---	---	---	---	---	5	157	8.50	176	1,717	1,871
1921	---	---	---	---	---	---	4	206	249.17	5,151	1,600	1,600
1922	---	---	---	---	---	---	4	204	159.96	3,307	2,079	2,079
1923	---	---	---	---	---	---	1	37	1.31	27	527	432
1924	---	---	---	---	---	---	2	13	1.22	25	319	214
1925	---	---	---	---	---	---	3	50	4.71	97	2,469	1,714
1926	---	---	---	---	---	---	---	---	---	---	---	---
1927	---	---	---	---	---	---	7	175	35.44	732	1,736	984
1928	---	---	---	---	---	---	5	350	188.58	3,898	1,809	1,058
1929	---	---	---	---	---	---	5	317	28.15	582	1,358	724
1930	---	---	---	---	---	---	1	7	18.37	380	23	9
1931	---	---	---	---	---	---	---	---	---	---	---	---
1932	---	---	---	---	---	---	---	---	---	---	---	---
1933	---	---	---	---	---	---	---	---	---	---	---	---
1934	---	---	---	---	---	---	2	145	49.53	1,731	518	335
1935	---	---	---	---	---	---	3	212	90.15	3,156	170	122

Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

(Compiled by Charles White Merrill, Mineral Production and Economics Division, U. S. Bureau of Mines)

Lode (Continued)

Year	Copper		Lead		Total value	Average recoverable value of ore per ton1/	Total value, lode and placer
	Pounds	Value	Pounds	Value			
1906	--	--	--	--	$36,780	$5.25	$36,780
1907	105,199	$21,040	64,000	$3,392	71,579	7.54	71,579
1908	24,334	3,212	19,237	808	20,405	9.52	20,405
1909	34,877	4,534	20,000	860	20,724	50.67	20,724
1910	3,521	447	23,288	1,025	10,007	8.93	10,007
1911	1,256	157	26,393	1,188	4,074	25.78	4,074
1912	311,559	51,407	13,749	619	70,015	22.73	70,015
1913	646,812	100,256	6,933	305	110,809	12.19	110,809
1914	190,193	25,296	1,240	48	28,153	19.74	28,393
1915	384,258	67,245	3,468	163	73,844	27.09	73,844
1916	2,547,058	626,576	--	--	658,563	37.28	658,563
1917	2,590,756	707,270	35,799	3,079	753,570	37.81	753,570
1918	1,923,259	475,045	18,011	1,279	519,289	40.26	519,289
1919	85,470	15,897	--	--	18,149	33.99	18,149
1920	1,018	187	19,966	1,597	3,831	24.40	3,831
1921	27	4	905	41	6,796	32.99	6,796
1922	372	50	3,948	217	5,653	27.71	5,653
1923	--	--	--	--	459	12.41	459
1924	48	6	5,971	478	723	55.62	723
1925	--	--	600	52	1,863	37.26	1,863
1926	--	--	--	--	--	--	--
1927	22,310	2,923	4,657	293	4,932	28.18	4,932
1928	6,251	900	--	--	5,856	16.73	5,856
1929	29,130	5,127	--	--	6,433	20.29	6,433
1930	--	--	--	--	389	55.57	389
1931	--	--	--	--	--	--	--
1932	--	--	--	--	--	--	--
1933	--	--	--	--	--	--	--
1934	--	--	--	--	2,066	14.25	2,066
1935	51	4	--	--	3,282	14.99	3,282
Totals	8,907,759	$2,107,589	268,165	$15,444	$2,438,244	$27.23	$2,438,484

1/ Not to be confused with average assay value of ore.

5267

Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Dolly Group

The Dolly Group of four unpatented claims is owned by W. van Schoick, of Luning, Nev., and associates. This property is south of the New Year group and was formerly called the Luning Consolidated Gold Mining Co.

The property is developed by shafts and tunnels. The deepest shaft is 250 feet deep and the longest tunnel is 900 feet long. Underground workings total about 2,500 feet. Ore is mined by hand methods.

In 1935 the present owners erected a small amalgamation concentration mill at Luning, and up to June 1936 about 400 tons of ore, averaging $15 per ton, had been treated.

Mill equipment includes a jaw crusher 6 by 9 inches, a Sacramento mill[23] an amalgamation plate 4 1/2 feet wide and 5 feet long, and a concentrating table. By grinding to 50-mesh a recovery of 75 to 80 percent is obtained by amalgamation and table concentration.

Power for milling is furnished by a 50-horsepower Waukesha engine. Water for milling is pumped from a well near the millsite.

According to Van Schoick, the formations on the Dolly group are granite and diorite. Gold ore is present in several fissure veins that range in width from 18 inches to 4 feet and dip 35 to 50°.

American Copper Co.

The most productive copper properties in the Santa Fe district were the Wall Street and Turk mines in New York Canyon 7 miles east of Luning. About 1929 these two mines and other properties in the locality were incorporated as the American Copper Co. Holdings of this company comprise 12 unpatented and 2 patented claims.

Development comprises several shafts, tunnels, and lateral workings that total about 2 miles. The deepest shaft is 428 feet. According to Hill[24], the country rocks consist mainly of crystalline limestones, probably of Triassic age, that have been intruded by granitoid rocks that range from quartz monzonite to quartz diorite and probably are Cretaceous.

At the Wall Street mine copper carbonate ore is present in an eastward striking brecciated zone 30 feet wide in westward-dipping limestones. The principal ore minerals are malachite, chrysocolla, azurite, and cuprite, which occur in thin irregular masses in reddish jasperoidal limestone.

23/ A Sacramento mill is similar in design to an Ellis mill. Grinding is done with four iron balls, each weighing 145 pounds, rolled in a circular iron pan.

24/ Work cited.

Generated on 2024-09-18 02:50 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Other Mines and Prospects

A number of other properties in the vicinity of New York Canyon produced small quantities of ore in former years, including the Champion, Larflower, Mastodon, Silver Guardian, Vacation, Neversweat, Wedge, Copper Queen, Ideal, Giroux, and Calvada. These properties have been prospected and worked through tunnels and shafts ranging from 150 to 800 feet in depth.

The commercial copper ore is composed of copper carbonates and oxides in limestone, occurring in masses of irregular size and shape. All these properties have been idle for many years, and most of the mine equipment has been removed. The opportunities for mining additional copper ore from these properties are promising if the price of copper ever attains a figure comparable to the World War price. With the present price of copper the outlook for producing ore of shipping grade is not encouraging.

SILVER STAR DISTRICT

The Silver Star, also known as the Gold Range, Mina, or Douglas district, is in Excelsior Mountains in southern Mineral County. The nearest shipping point is Mina on the Mina-Hazen branch of the Southern Pacific R. R., 6 miles northeast of Camp Douglas. The Douglas portion of the district covers a mineralized area roughly 2 miles long and 1 mile wide.

Veins carrying gold and silver were discovered at Camp Douglas by Pepper, Grassi, and Robb in 1893. From 1893 to 1903 considerable activity prevailed at Camp Douglas, and during this period lessees are reported to have produced about $500,000. During the panic of 1893, Camp Douglas was known as the "Dinner Pail", because of the opportunity afforded lessees to make a good living. The discovery of bonanza ore at Tonopah in 1900 drew many of the leasers away from the camp, so that production declined.

In former years, several small mills were erected in the Douglas area, but the bulk of the ore has been shipped to smelters for treatment. Most of the ore has been mined from shallow depths; the deepest working is the Bounce shaft, 425 feet deep.

The metal production of the Silver Star district from 1902 to 1935 is shown in table 8.

The tungsten deposits in the Excelsior Mountains were discovered in 1916 by Charles W. Noble on claims that he originally located for silver. Shortly after the discovery of tungsten the Noble property was sold to Atkins-Kroll Co., who operated it until 1918, when the mine was sold to other interests.

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

TABLE 8. - Gold, silver, copper and lead production from Silver Star district, M
al County, Nev., 1902-35

(Compiled by Charles White Merrill, Mineral Production and Economics Division
U. S. Bureau of Mines)

Year	Placer						Lode			
	No. of mines	Gold		Silver		Total value	No. of mines	Ore, short tons	Gold	
		Fine oz.	Value	Fine oz.	Value				Fine oz.	Value
1902	---	---	---	---	---	---	1	480	288.41	$5,9
1903	---	---	---	---	---	---	3	205	359.33	7,4
1904	---	---	---	---	---	---	4	256	225.52	4,6
1905	---	---	---	---	---	---	5	697	718.37	14,8
1906	---	---	---	---	---	---	2	650	290.25	6,0
1907	---	---	---	---	---	---	---	---	---	---
1908	---	---	---	---	---	---	5	234	108.01	2,2
1909	---	---	---	---	---	---	4	127	41.75	8
1910	---	---	---	---	---	---	7	250	208.11	4,3
1911	---	---	---	---	---	---	7	121	65.42	1,3
1912	---	---	---	---	---	---	17	1,505	344.17	7,1
1913	---	---	---	---	---	---	14	413	258.64	5,3
1914	---	---	---	---	---	---	8	296	181.58	3,7
1915	---	---	---	---	---	---	21	2,016	1,528.49	31,5
1916	---	---	---	---	---	---	20	1,485	312.56	6,4
1917	---	---	---	---	---	---	22	2,651	107.27	2,2
1918	---	---	---	---	---	---	18	2,262	40.16	8
1919	---	---	---	---	---	---	6	439	8.64	1
1920	---	---	---	---	---	---	7	118	41.70	8
1921	---	---	---	---	---	---	5	50	18.39	
1922	---	---	---	---	---	---	6	133	84.93	1,
1923	---	---	---	---	---	---	8	143	96.95	2,
1924	---	---	---	---	---	---	7	345	196.80	4,
1925	---	---	---	---	---	---	9	390	472.50	9,
1926	---	---	---	---	---	---	8	333	266.58	5,
1927	1	21.34	$441	5	$3	$444	10	236	188.15	3,
1928	---	---	---	---	---	---	8	538	323.53	6,
1929	---	---	---	---	---	---	7	322	416.38	8,
1930	---	---	---	---	---	---	3	583	309.74	6,
1931	---	---	---	---	---	---	6	1,232	736.37	15,
1932	---	---	---	---	---	---	12	886	549.97	11
1933	---	---	---	---	---	---	11	739	610.28	15,
1934	---	---	---	---	---	---	17	5,083	1,804.71	63
1935	---	---	---	---	---	---	14	7,443	2,876.06	100
Total		21.34	$441	5	$ 3	$444		32,220	14,079.72	$361

Continued ---

Generated on 2024-09-18 02:47 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

8. - Gold, Silver, copper and lead production from Silver Star district, Mineral County, Nev., 1902-35 (Continued)

Compiled by Charles White Merrill, Mineral Production and Economics Division, U. S. Bureau of Mines)

Lode (Continued								
Silver		Copper		Lead		Total value	Average recoverable value of ore per ton1/	Total value, lode and placer
Fine oz.	Value	Pounds	Value	Pounds	Value			
148	$78	--	--	--	--	$6,040	$12.58	$6,040
298	161	--	--	--	--	7,589	37.02	7,589
19,008	11,025	--	--	--	--	15,687	61.28	15,687
3,356	2,047	56,376	$8,795	14,106	$663	26,355	37.81	26,355
5,124	3,484	180,000	34,740	120,000	6,840	51,064	78.56	51,064
--	--	--	--	--	--	--	--	--
1,345	713	591	78	64,453	2,707	5,731	24.49	5,731
11,915	6,196	315	41	45,581	1,960	9,060	71.34	9,060
7,660	4,142	536	68	15,427	679	9,191	36.76	9,191
4,829	2,559	35	4	6,103	275	4,190	34.63	4,190
7,663	4,713	100,244	16,540	30,478	1,371	29,739	19.76	29,739
3,835	2,316	12,512	1,939	12,621	555	10,157	24.59	10,157
2,365	1,308	947	126	38,634	1,507	6,695	22.62	6,695
14,843	7,525	41,138	7,199	181,031	8,508	54,829	27.20	54,829
8,252	5,430	190,567	46,880	7,906	545	59,316	39.94	59,316
9,038	7,447	283,473	77,388	24,033	2,067	89,120	33.62	89,120
4,415	4,415	225,417	55,678	9,812	697	61,620	27.24	61,620
3,070	3,438	31,335	5,828	898	48	9,493	21.62	9,493
11,687	12,739	1,079	199	71,378	5,710	19,510	165.34	19,510
4,529	4,529	490	63	7,444	335	5,307	106.14	5,307
8,690	8,690	93	13	19,363	1,065	11,523	86.64	11,523
2,849	2,336	1,219	179	16,495	1,154	5,673	39.67	5,673
503	337	31	4	5,537	443	4,852	14.06	4,852
3,329	2,310	1,229	175	22,955	1,997	14,249	36.54	14,249
10,651	6,646	6,502	910	30,885	2,471	15,538	46.66	15,538
3,035	1,721	4,364	572	12,222	770	6,952	29.46	7,396
1,053	616	66	10	6,611	384	7,698	14.31	7,698
2,525	1,346	242	43	12,567	792	10,788	33.50	10,788
561	216	--	--	--	--	6,619	11.35	6,619
1,061	308	--	--	--	--	15,530	12.61	15,530
2,337	659	248	16	3,489	105	12,149	13.71	12,149
980	343	160	10	--	--	15,952	21.59	15,952
3,552	2,296	97	8	6,854	254	65,633	12.91	65,633
5,690	4,090	316	26	9,119	365	105,143	14.13	105,143
170,205	$116,179	1,139,622	$257,532	796,002	$44,267	$778,992	$24.21	$779,436

t to be confused with average assay value of ore.

Generated on 2024-09-18 02:47 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

General Tungsten Corporation

The General Tungsten Corporation, incorporated in 1926, George F. Thompson, president, owns 10 unpatented claims in the Excelsior Mountains, 14 miles southwest of Mina via Pepper Springs. From Pepper Springs there is no road to the property, and supplies and ore must be transported by pack train.

Development consists of two tunnels, respectively 600 and 300 feet in length, a shaft 50 feet deep, and several open-cuts, totaling in all about a thousand feet. There is no equipment on the property.

Production has been one carload of gold-silver ore shipped in 1926 and 350 tons of scheelite ore milled at the Wagner mill at Silver Dyke in 1928. The scheelite ore is said to have carried 3 1/2 percent WO_3. In 1936, the corporation applied for a R. F. C. class B mining loan of $20,000 for further development of the property. It was stated that this loan has been approved.

The Silver Dyke vein system traverses the property and in places is 100 feet wide. Values are in gold, silver, and scheelite in a gangue of quartz and country rock.

Silver Dyke Mine

The Silver Dyke mine and concentrator are on the east flank of the Excelsior Mountains 14 miles by automobile road southwest of Mina, Nev. The Silver Dyke property comprises nine unpatented claims controlled by the Nevada-Massachusetts Co., Inc., which also owns tungsten mines near Mill City, Nev. During the World War period this property was owned and operated by the Atkins-Kroll Co. of San Francisco. This company erected a 50-ton concentrator at Sodaville for the treatment of the scheelite ore. In 1926, lessees constructed a 25-ton concentrator on the Wagner property which was operated until 1927. In 1929 the Wagner and Silver Dyke properties were acquired by the Nevada-Massachusetts Co., Inc., and in 1930 the present concentrator of 60 tons capacity was erected.

The value of the production of scheelite concentrates from this property has been close to $1,000,000.

In 1936, the Silver Dyke mine and concentrator employed a crew of 35 men, and 55 tons of scheelite ore per day were being treated. The concentrates produced averaged between 63 and 66 percent WO_3.

Development includes a crosscut tunnel 800 feet long and several shafts totaling, in all, about 4,000 feet of underground workings. The plan and section of the mine workings are shown in figure 4. The ore is mined by shrinkage and open-stope mining methods.

Mining equipment includes an Ingersoll Rand Imperial-type 10-compressed rock drills, steel sharpener, and a Baldwin Westinghouse storage-battery locomotive.

Generated on 2024-09-18 02:43 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

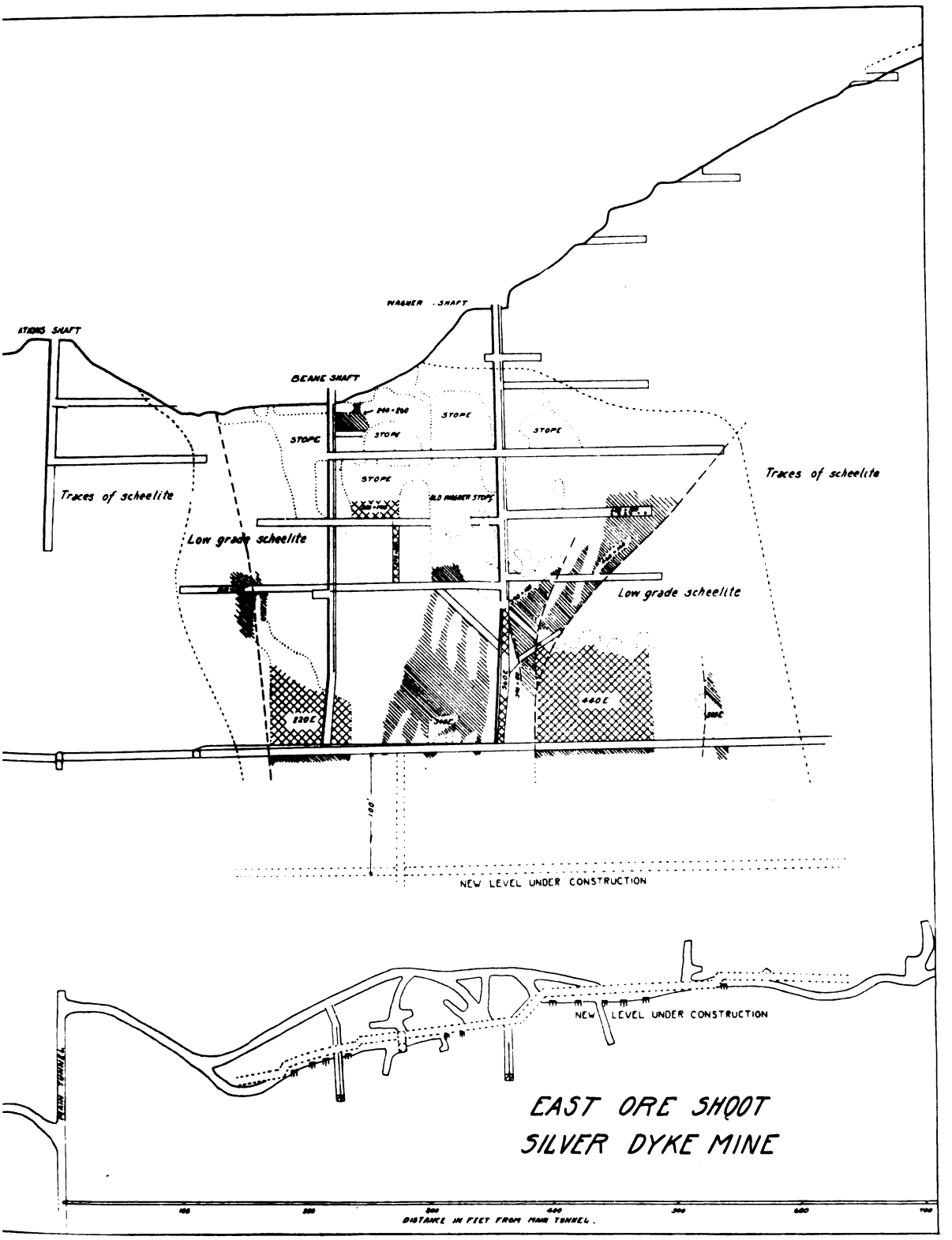

Figure 4.— Plan and section of Silver Dyke mine, Mineral County, Nev. (After Kerr.)

Generated on 2024-09-18 02:46 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Generated on 2024-09-18 02:44 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

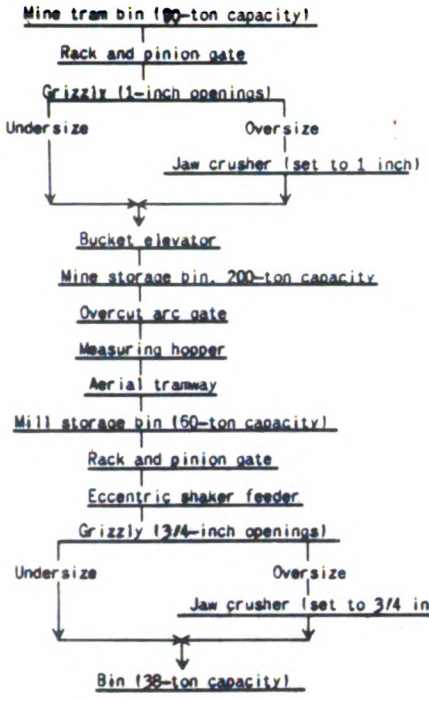

Figure 5.- Flow sheet of Silver Dyke crushing plant.

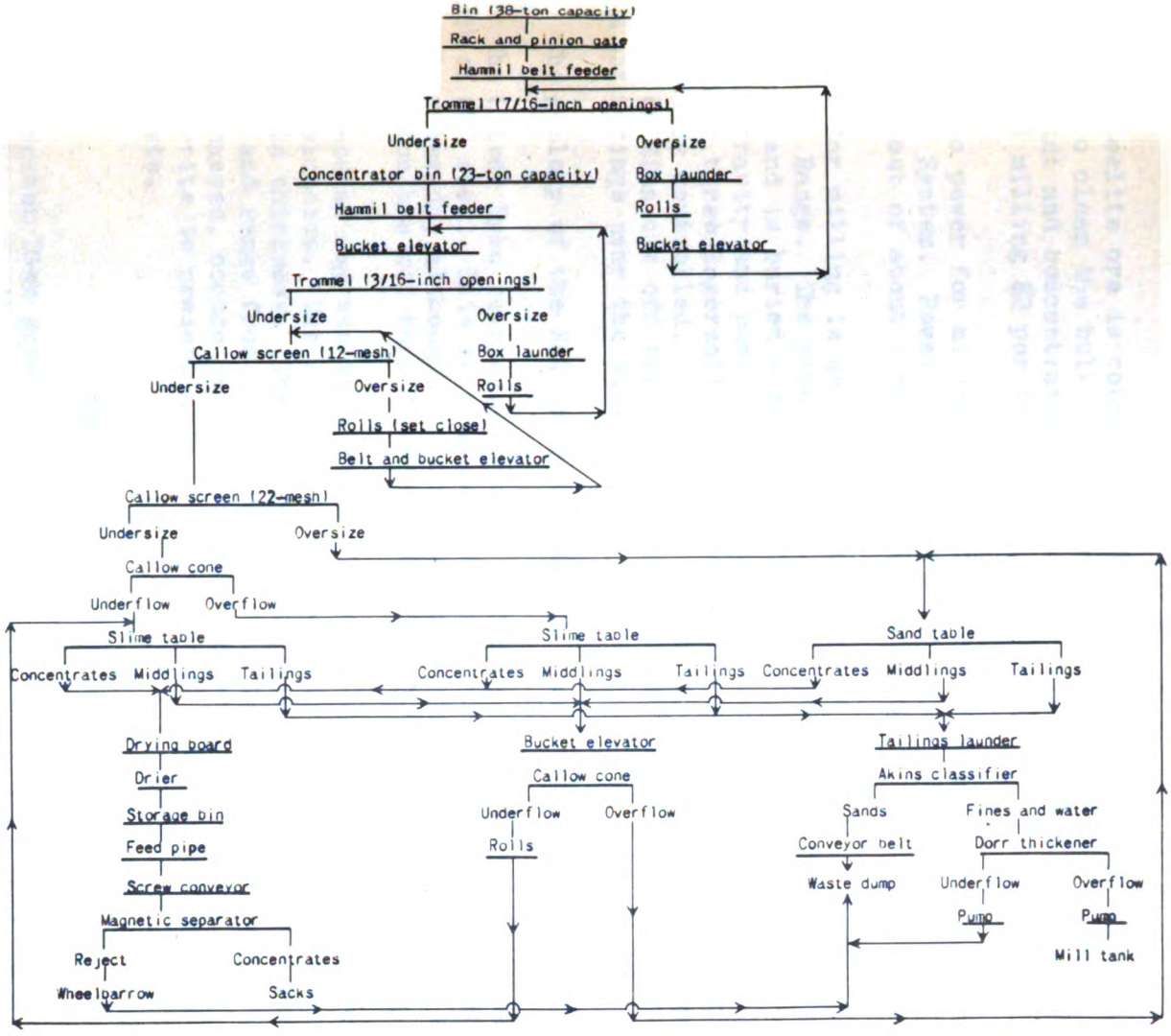

Figure 6.- Flow sheet of Silver Dyke concentrator.

Original from THE OHIO STATE UNIVERSITY

The scheelite ore is concentrated by tabling, following by magnetic separation to clean the bulk table concentrates. The flow sheets of the crushing plant and concentrator are shown in figures 5 and 6. Mining cost is $4.50 and milling $2 per ton.

Electric power for mining and milling is purchased from the Mineral County Power System. Power consumption averages 60,000 kilowatt-hours per month at a cost of about 2 cents per kilowatt-hour.

Water for milling is obtained from Spearmint Springs in Spring Canyon in the Pilot Range. The pipe line is 10 1/4 miles in length and 4 inches in diameter and is buried a depth of 30 inches. The flow of water to the mine is by gravity and pumping. Pumping lift is 1,528 feet, and the water is raised by three Ingersoll Rand, direct-connected, centrifugal pumps automatically controlled. In December 1932 a major earthquake in the vicinity of Mina cut off the mill water supply formerly obtained from a well and springs near the mine.

The geology of the Silver Dyke mine has been described by Kerr[25/].

The Silver Dyke vein system has a length of 4 1/2 miles and a maximum width of 600 feet. This vein system has been called the Great Silver Dyke of western Nevada, although it is a vein rather than a dike and the silver mineralization has not been important from the production viewpoint.

In a general way the vein system follows a contact between diorite and other volcanics. The scheelite-bearing veins measure from a few inches to 15 feet in thickness. The ore shoots are spaced irregularly along the vein system and range from 60 to 120 feet in length. The scheelite, in grains and masses, occurs in quartz associated with albite. A small amount of pyrite is present also. The ore mined averages about 1 per-cent scheelite.

Tungsten Dike Group

The Tungsten Dike group of six unpatented claims, owned by E. T. Heggland of Mina, is in the Excelsior Mountains 12 miles southwest of Mina. Property is inaccessible by automobile. Production has been 30 tons of scheelite ore.

Development consists of a tunnel 190 feet long, a shaft 48 feet deep, and some open-cuts totaling 500 feet.

These claims also are on the Silver Dyke vein system, and the values are in gold, silver, and tungsten, which are in a series of lenses.

25/ Kerr, Paul F., The Tungsten Mineralization at Silver Dyke, Nev.: Bull. University of Nevada, vol. 30, no. 5, 1936, 70 pp.

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

Nevada Douglas Gold Mines, Inc.

The largest holdings in the Douglas area are owned by the Nevada Dou Gold Mines, Inc., of which Harry E. Springer of Mina is the principal own Property comprises 16 patented and 4 unpatented claims.

Development includes a tunnel 500 feet long, a shaft at the tunnel portal, and other workings. In 1927 the company erected a 65-ton all-slime cyanide mill on the property, which has operated for short periods. Mill equipment includes a Blake crusher, Hardinge ball mill, Dorr duplex classifier, Oliver filter, two Dorr agitation tanks, and three Dorr thick-ening tanks. The mill is operated by gasoline engine.

A tailings pile on the property estimated to contain 10,000 tons is reported to carry good values in gold.

The formation is mainly andesite, argillite, and dacite. A number of veins range from 1 to 5 feet in width. The principal gangue mineral is quartz, which is considerably shattered. Manganese and calcite also are present. The main vein which strikes nearly east and west, is at the contact of quartz porphyry and andesite. The width of this vein ranges from a few feet up to 30 feet. The smaller veins, from which most of the production has been derived, intersect the contact vein at acute angles. Values are chiefly in gold and silver.

High Ore Group

The High Ore group of three unpatented claims is owned by B. G. Str 1733 Cardova St., Los Angeles, Calif. In June 1936, the property was un lease to E. C. Van Allen, who worked with three men.

Development work consists of an incline shaft 130 feet deep and sev hundred feet of lateral workings.

Equipment includes a Straub mill having a capacity of 2 1/2 tons in 9 hours and a gravity tram 600 feet in length from the mine to the mill. Ore is mined by hand methods.

In June 1936, a 7-day mill run produced 7 1/2 ounces of bullion wor $25 per ounce. The grade of the ore treated was $12.50 to $42 per ton.

Primary crushing is done with a 7- by 9-inch Blake-type crusher. A grinding in the Straub mill the values are recovered by amalgamation on plate 7 1/2 feet long and 2 1/2 feet wide. By grinding to 30-mesh the r covery is about 75 percent of the values. The mill is operated by a 15-horsepower Stover gasoline engine.

Water for milling is hauled by truck from Pepper Springs 2 1/2 mil distant. Water consumption in milling is approximately 1,500 gallons p 9 hours. Part of the water is reclaimed.

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

The ore occurs in veins in rhyolite. Values are chiefly in gold.

Bentonite

A deposit of bentonite type of clay was discovered about 1928 on the east slope of Excelsior Mountains about 1 mile west of Sodaville.

Production of bentonite has been in the neighborhood of 15,000 tons from two claims owned by Cooper Shapley, formerly of Bishop, Calif. The bentonite was mined by power shovel and hauled by truck to Sodaville at a cost of 90 cents per ton. The bentonite was shipped to the Pacific coast markets for use as oil-well drilling mud. The deposit has been prospected by a number of trenches and shallow shafts.

Individuals living at Mina, Nev., who own bentonite claims are J. R. Towner, three; William Ray and William Gash, two, jointly; and George F. Thompson, several.

The bentonite occurs as a bedded deposit underlying surface detritus. It is said to be free from grit and in places is iron-stained and traversed by seams of gypsum. The overburden ranges in depth from 6 to 10 feet. Large reserves are indicated.

TEEL'S MARSH DISTRICT

Teel's Marsh is 2 miles south of the old mining camp of Marietta in southern Mineral County. It is reached by automobile road from Mina, a town on the Southern Pacific R. R. 26 miles to the northeast by way of Belleville.

This marsh, which in reality is a dry lake, was first worked for sodium chloride in the late sixties. The salt supplied the chlorination mills at Aurora, Comstock, and Candelaria. It is interesting to note that this marsh was the site of the first discovery of borax in Nevada by F. M. Smith, better known as "borax" Smith, and J. P. Smith, his brother. According to S. T. Nelso of Hawthorne, Nev., who was at one time superintendent for the Smith Brothers, borax was found in Teel's Marsh about 1872. Shortly after, several plants for the extraction of borax were erected in the southeast portion of the marsh. These plants maintained a steady production up to 1892, when they were abandoned because of the discovery of richer deposits of the borax mineral, colemanite, in the vicinity of Death Valley, Calif. Although Teel's Marsh is not important economically at present, it produced a considerable quantity of borates and played an important part in the development of the borax industry in the United States.

Teel's Marsh is 5 miles long, 1 to 2 miles wide, and covers an area of about 8 square miles. The elevation of the surface of the marsh is 4,900 feet above sea level. The common salts in the playa deposits in the great basin region of which Teel's Marsh ia an example are the chlorides, sulphates, carbonates, bicarbonates, and borates of sodium and potassium. Magnesia and lime are present as minor constituents. In nearly all of the deposits the

Generated on 2024-09-18 02:48 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

sodium salts predominate. Due to the fact that the borates are more solu than the other salts, they remain in solution longer, and if the lake has alternate periods of desiccation and flooding the borates will crystalliz out at or near the surface.

The deposition of borates in the playa type of deposits depends upon a combination of favorable conditions that is not widespread, and in con sequence this type of deposit is restricted as to locality. The essentia conditions required for the accumulation of borates are:

1. A source of boron, namely, solfataric springs in a region of former volcanic activity.

2. Suitable drainage basins, without any outlet, for the accumulati of the salts.

3. The climate must be sufficiently arid to concentrate the salts b evaporation and to prevent the removal of the borates, which are relative soluble compounds.

At Teel's Marsh the boron-bearing mineral was principally borax, the natural sodium tetraborate intimately mixed with other salts forming a crust on the surface of the playa. The upper stratum of the deposits was the purest worked, but when this crust was removed other strata were fou below at shallow depths associated with greater quantities of carbonate o soda or sodium chloride. The presence of sodium carbonate in the salts p vented the formation of the mineral ulexite nodules, the characteristic boron mineral in some dry-lake deposits.

The refining of the product was simple, as the natural borate of so only required boiling to get the mineral in solution. On cooling, the bo was precipitated on wires or rods suspended in vats, leaving the other fo of soda, sand, and clayey matter at the bottom of the vat to be run off i the waste solution. The solution pans were semicircular, about 8 feet in diameter and 30 feet in length. These were fired from beneath with sage brush, greasewood, or pinon pine from the foothills.

The crude borax obtained by crystallization was first hauled with wagon teams to Wadsworth, Nev., 130 miles distant, for shipment by rail to the San Francisco Bay region, where refineries were located. In 1882 a narrow-gage railroad was completed to Mina, and long haul with a team was eliminated.

WHISKEY FLAT DISTRICT

The Whiskey Flat district is at the south end of Whiskey Flat, on the north slope of the Excelsior Mountains, about 20 miles southeast of Hawthorne. Mining was first done in this area in 1882, when copper ore carrying silver and a little gold was treated locally in a 400-pound-capacity furnace.

Generated on 2024-09-18 02:45 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from THE OHIO STATE UNIVERSITY

A company called the Excelsior Mountain Copper Co. operated for several years after 1907. Production has been small. There has been no activity in the district in recent years.

The mineralization is in limestone near a granite contact. In addition to silver and a little gold, the ore carries copper carbonates and sulphides. Garnet occurs as a gangue mineral.

Generated on 2024-09-18 02:44 GMT / https://hdl.handle.net/2027/osu.32435030644033
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

Original from
THE OHIO STATE UNIVERSITY